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THE

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Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 to 10		Dr. Carpenter. *Ophthalmology.*		Dr. Carpenter. *Ophthalmology.*		Dr. Carpenter. *Ophthalmology.*
10 to 11.	Dr. Lindsay, *Obstetrics.*	Prof. Taylor. *Children.*	Prof. Baldy. *Gynæcology.*	Prof. Baldy. *Gynæcology.*	Prof. Davis. *Obstetrics.*	Prof. Taylor. *Children.*
11 to 12.	Prof. Morton. *Surgery.*	Prof. Steinbach. *Surgery.*	Prof. Morton. *Surgery.*	Adj. Prof. Stern. *Surgery.*	Prof. Morton. *Surgery.*	Prof. Steinbach. *Surgery.*
12 to 12.45.	Prof. Cohen. *Medicine.*	Adj. Prof. Cantrell. *Dermatology.*	Prof. Van Harlingen. *Dermatology.*	Prof. Griffith. *Medicine.*	Prof. Cohen. *Medicine.*	Prof. Griffith. *Medicine.*
12.45 to 1.15. Intermission for Luncheon.						
1.15 to 2.	Prof. Baer. *Gynæcology.*	Prof. Randall. *Otology.*	Prof. Baer. *Gynæcology.*	Prof. Randall. *Otology.*	Prof. Baer. *Gynæcology.*	Prof. Randall. *Otology.*
2 to 3.	Prof. Wilson. *Orthopædics.*	Prof. MacCoy. *Laryngology.*	Prof. Wilson. *Orthopædics.*	Prof. Watson. *Laryngology.*	Prof. Wilson. *Orthopædics.*	Prof. Watson. *Laryngology.*
3 to 4.	Dr. Bassette. *Neurology.*	Prof. Mays. *Chest.*	Prof. Mills. *Neurology.*	Prof. Mays. *Chest.*	Prof. Mills. *Neurology.*	Prof. Mays. *Chest.*
4 to 5.	Prof. Simes. *Venereal.*	Prof. de Schweinitz. *Ophthalmology.*	Prof. Simes. *Venereal.*	Prof. Risley. *Ophthalmology.*	Prof. Jackson. *Ophthalmology.*	Prof. de Schweinitz. *Ophthalmology.*
5 to 6.	Prof. Roberts. *Surgery.*	Dr. Burr. *Medicine.*	Adj. Prof. Bower. *Surgery.*	Prof. Deaver. *Surgery.*	Dr. Eshner. *Medicine.*	Dr. Brinkman. *Surgery.*
6 to 7.		Prof. Slocum. *Gynæcology.*				Prof. Slocum. *Gynæcology.*
7 to 8.	Dr. Adler. *Rectal Diseases.*		Dr. Adler. *Rectal Diseases.*		Dr. Adler. *Rectal Diseases.*	
8 to 9.	Prof. Mays. *Exp. Therapeutics.*	Lecture.	Medical Societies.	Medical Societies.	Lecture.	

THE

PHILADELPHIA POLYCLINIC.

MARCH, 1892.

UNUSUAL CASES OF VENTRAL HERNIA.[1]

By John B. Roberts, A. M., M. D.,

PROFESSOR OF SURGERY IN THE PHILADELPHIA POLYCLINIC AND IN THE WOMAN'S MEDICAL COLLEGE.

VENTRAL HERNIA WITH ABSCESS OF THE UMBILICUS SIMULATING BILIARY FISTULE.

This first case is interesting, because of the unusual situation of the hernial opening and the peculiar combination of circumstances connected with it which rendered a mistaken diagnosis possible.

The woman, aged about 45, gives a history of sudden attacks of pain in the abdomen above the navel, accompanied with vomiting of the contents of the stomach and bile. These attacks she has had at irregular intervals for three or four years. Recently the paroxysms of pain and vomiting have been more frequent. Within a few weeks she has suffered from a discharge of pus from the umbilicus. Her general condition otherwise has been very good, but she has been compelled to give up her occupation and apply for treatment because of the occurrence of these attacks of pain.

The history will at once suggest to you, as it did to me, a possible case of gall-stones in which the gall bladder had become adherent to the abdominal wall near the navel, and

[1] A clinical lecture at the Woman's Hospital of Philadelphia.

in which ulcerative processes, the result of an abscess led to a fistule opening in this region. I examined at my office some months ago, a case of this general character in a woman who had been given up to die by reason of a large abdominal swelling. She lived in Asia at the time and was probably not able to obtain the benefits of surgical skill. After many months of illness, an abscess formed and a fistule was left from the gall-bladder, or from the region in its neighborhood, opening at the umbilicus. This, when I saw her, was still the site of a slight purulent discharge. Some years ago I saw a similar case in a Catholic Institution, where a large number of gall-stones were discharged from such a fistule. The extrusions of these small stones, which amounted to several dozens, lasted for a considerable length of time.

Such cases are not very unusual, and I must admit that my first thought from the history of the present case was that we had a similar condition here. A careful examination by Dr. Fullerton, Physician-in-Charge of the Hospital, soon revealed, however, that the suppuration still existing at the navel was superficial. The navel was very much depressed and cup-shaped, and showed irritation of the skin at the bottom of the pit; but a probe inserted did not pass through the wall of the abdomen, but revealed quite a large amount of epithelium and sebaceous material at the bottom of the depressed umbilicus. This was carefully removed; and was evidently the cause of the irritation giving rise to a superficial abscess at the navel, from which nearly a drachm of pus had at one time been discharged.

It then became evident that this was simply a case of local inflammation, due to retained secretion at the bottom of the cup-shaped depression, and that there was no communication between the suppurative inflammation and the internal organs.

Further study of the case showed that there was, about an inch and a half above the navel, an opening in the linea alba sufficiently large to admit my finger tip and that

through this was a protrusion of intestine as large as a goose egg. This investigation at once cleared up the character of the case. It is one of ventral hernia occurring at an unusual spot with coincident abscess of the umbilical tissues. Becoming strangulated at times the hernia gives rise to intense pain and vomiting. It always has been reduced spontaneously, or by the manipulation of the patient in her efforts to relieve the pain by rubbing. There is no connection whatever between the hernia, with the vomiting and the pain which it causes, and the suppuration at the navel. The two conditions are present but have no pathological connection.

Since the patient has been in the Hospital, while waiting for a hernial truss to hold the intestines within the abdominal cavity, she has had one very severe attack due to strangulation of the gut. This strangulation was overcome by taxis with considerable difficulty, but made even more certain the correctness of the diagnosis which we had previously reached.

I have had made a hard rubber pad to be worn over the hernial opening, in the same manner as it would be worn if the hernia was at the umbilicus itself, which is the usual situation. If this does not retain the protrusion I shall then make an incision, and dissect out the sac of the hernia, stitch together the edges of the ring after freshening them, and apply the usual dry antiseptic dressings.

The case is interesting because of the unusual position of the hernia, and because of the complication which would lead to the diagnosis of biliary fistule, if careful and thorough examination were not made.

ENORMOUS VENTRAL HERNIA; A NEW OPERATION TO RELIEVE IT.

This old woman has had for years an enormous ventral hernia, due to giving way of the linea alba from successive pregnancies. The mass of intestines outside of the abdomen is sufficient to fill an ordinary bucket or pail, and

makes a large tumor that hangs down over the pubes and vulva. The raphe between the two rectus muscles has been separated from the pubes almost, if not entirely, up to the xiphoid cartilage of the sternum. The liver is displaced downward by the relaxation of the abdominal wall. The patient comes specially for treatment of the pain felt in the right hypochondriac region. This pain she has at home endeavored to relieve by the application of stimulating liniments. It is due, I believe, to the dragging upon the attachments of the liver, resulting from the weight of that organ being unsupported by the muscles of the belly wall.

I do not think I could entirely replace the contents of this enormous hernia in the abdominal and pelvic cavities, if I attempted to sew together the edges of the separated rectus muscles. The intestines and solid organs have been for 15 or 18 years in an abnormal position and the original cavity would probably now be too small to contain them. My advice is, that she remain in the Hospital for a couple of weeks, keeping in bed, and then submit to an operation to diminish the size of the protrusion; after which she should wear an abdominal supporter made of strong elastic webbing.

If she is willing and gets into a better physical condition, I shall operate by a method which is, as far as I know, novel. I wish to avoid exposure of the intestine to the cooling influences of the external air. I know moreover, that if the wound is large it will be extremely difficult to push the bowels back into the abdominal cavity. I therefore intend to make a small opening in the middle line near the umbilicus and introduce the index finger of my right hand. I shall then get my assistant to take up as large a longitudinal fold of the belly wall as possible, directly in the middle line from the sternum to the pubes. Through the base of this fold I shall pass a suture from the skin of one side to the corresponding spot on the opposite side of the fold, or tuck as it might be called. My index

finger within the peritoneal cavity will serve to prevent injury of the intestines, as the point of the large needle traverses the peritoneum in front of the bowels at the base of the fold. The same suture thread of silk or chromicized gut will then be brought back through the fold about a half inch lower down, and will be tied on the side first punctured by the needle. This will bring the peritoneum on each side of the median line into apposition and leave the redundant skin and subcutaneous tissues in a fold in front of the sutures. By passing a series of these sutures and having them interlocked, the whole length of the fold from sternum to pubes will be shut off from the general peritoneal cavity, and the intestines will be confined behind the row of sutures. I can then cut away the entire fold of redundant tissue, and put in superficial sutures along the cut edges without having prolapsed and exposed intestines in the way.

This manœuvre will greatly lessen the hernial protrusion due to the relaxed belly wall, and will be almost free from risk. There is in the case no true hernial sac, as you will understand, for the whole linea alba has spread apart as it were. Hence, there is no narrow hernial orifice, but a gradual stretching and interstitial increase of area of peritoneum, subcutaneous fascia, and skin. It may be necessary to make more than one small orifice for the introduction of my finger, to prevent puncture of the bowel while introducing the deep peritoneal coaptation sutures. But these orifices will not allow prolapse of gut and can be readily sutured when the finger is withdrawn.

Such an operation with the subsequent wearing of a rubber webbing abdominal supporter will, I think, make the patient much more comfortable.

THE CONTAGIOUS DISEASES OF THE SKIN.[1]

By Arthur Van Harlingen, M. D.,

PROFESSOR OF DISEASES OF THE SKIN IN THE PHILADELPHIA POLYCLINIC, AND DERMATOLOGIST TO THE HOWARD HOSPITAL.

When a patient suffering from a disease of the skin presents himself for examination and treatment, one of the first questions which he most commonly puts to his physician is, as to the contagiousness of the affection. "Doctor, is this catching?" or "have I caught this from any one?" To answer this question with certainty one must first have made a diagnosis and have come to a conclusion as to the nature of the disease, and then one must know whether or not the affection is transmissible by contagion.

I take it for granted that those who hear me are acquainted with the features of the skin diseases most commonly met with so as to be able to determine after a brief examination which is present in any given case, provided the affection is fairly displayed and in such a manner that its characteristic peculiarities can be seen.

But more than this is required in many cases, and since I can not here and now give a scheme for the differential diagnosis of all skin difficulties, my plan is to enumerate those which are contagious and speak of some of their diagnostic aspects, so as to enable you to exclude them if necessary, in considering the nature of any doubtful case which may come before you.

Some years ago, before the science of dermatology had reached the point it has now attained, it would have been an easy matter to have enumerated all the skin diseases then known as contagious. We would have mentioned the syphilodermata, the animal and the vegetable parasitic skin diseases, and there we should have stopped.

[1] Report of an Evening Lecture at the Polyclinic.

But the studies of late years, and particularly those of a bacteriological character, have obliged us to increase the number of technically contagious disorders, although practically, we need not consider many more than those included in the above enumerated groups.

I shall consider the contagious diseases of the skin under three groups; excluding of course, the eruptive fevers which do not come under present consideration. The first of these includes the *syphilodermata*, the *tuberculodermata* or manifestations of tuberculosis of the skin, and the *lepradermata* or cutaneous manifestations of leprosy.

Of these, the *syphilodermata* comprise the only class of eruptions which practically concern us. Although theoretically contagious, the tuberculodermata, even at the period when ulceration has taken place, are not practically dangerous, no case I believe, being on record where tuberculosis of the skin has been conveyed from one person to another. Nor is there any recorded case of the transmission of leprosy from one person to another; certainly none has occurred in this country. The syphilodermata therefore alone concern us.

I may be permitted to remind you that the skin manifestations of syphilis are of two orders. During what is known as the *primary* period, that of the existence of the initial lesion or chancre, and during the *secondary* period or that of the presence of mucous patches, of the erythematous, papular, and early pustular generalized eruptions, the affection is, as is well-known, highly contagious. But when the first activity of the disease has, as it were, burned itself out, or has been abated by the employment of appropriate remedies, a second series of phenomena not unfrequently succeed, after an interval, varying in different cases from a few months to many years, comprising solitary lesions or scattered small groups of lesions. These appear to have a local, rather than a generalized character and, at times are successfully treated by topical applications alone. The tuberculous, gummatous and ulcerative lesions belong to this series. They are feebly, if at all contagious and I have

never known nor read of a case where it has been proved that these late syphilitic lesions have conveyed the disease. In accordance therefore, with the practical character of these remarks, I shall only consider the early lesions of syphilis. These have certain marked characteristics in common, which should be borne in mind.

The *syphilitic eruptions* of the skin are characterized by certain peculiarities, which they possess in common and which serve to differentiate them from other skin affections. These are as follows: 1. Polymorphism. 2. Peculiar color. 3. Rounded form. 4. Apyretic, indolent, apruriginous character. 5. Amenability to the curative influence of mercury.

When you see before you a patient presenting a generalized eruption looking like the manifestation of an eruptive fever; but cold, and without febrile symptoms, when in addition you find this eruption presenting at one point papules, at another macules and perhaps again elsewhere one or two pustular lesions, you may suspect the presence of syphilis. You will then examine the superficial lymphatic glands, the posterior cervical, the anterior cervical, the sub-mental and the supra trochlear. If among any of these you find small bullet or almond shaped enlargements, you may be pretty sure that you have a syphilitic eruption. You then look at the lips, the bucal surface of the cheeks, the tonsils and the tongue. If you find here small gray erosions, not ulcers and not ruptured herpetic vesicles, the ordinary "canker" of the mouth, which are yellow and not gray, and are apt to be cup-shaped if single or polycyclic in outline if several occur together: if, I say, you find these gray mucous patches you will be sure that you have syphilis in a highly contagious form to deal with.

The more tardy of the early syphilodermata are less likely to be widely generalized, but in proportion as the lesions become less symmetrical and less numerous the disease becomes less virulently contagious.

The *tuberculodermata* are of several kinds. We have first the deep excavating tubercular ulcer, most apt to occur about the muco-cutaneous orifices and characterized by a deep pinched-out cavity with gray base and highly rebellious to treatment. Such cases are very rare.

The *leprodermata* are of such rare occurrence as to be practically hardly worth considering at present. When they actually begin to ulcerate the disease is so advanced that its presence is unmistakable.

I will pass now to the consideration of the animal parasitic diseases of the skin. These are numerous, but the only ones which practically concern us, are those caused by *Pediculi*, the *Acarus scabei* and the *Cimex* and *Pulex*.

Pediculosis or lousiness, occurs as the result of the presence of three different kinds of lice. The head louse, *p. capitis;* the body, or clothes louse *p. vestimentarum*, and the crab louse or *p. pubis*. The two former resemble each other closely in shape and size, while the crab louse is shield or crab-shaped.

In *pediculosis capitis* when the insects are present in any number, they are easily recognized, but when only a few are present in any given case the diagnosis of the affection sometimes becomes difficult. It is important, however, to be able to recognize slight cases.

Some years ago I was called to see an infant in a professional gentleman's family who had some eruption in the scalp, supposed to be a "tooth rash." I was struck by the locality of this eruption, which was on the back of the scalp just above the neck. Long familiarity with pediculosis capitis in hospital and dispensary practice, had taught me that eczema of the posterior border of the scalp and nucha is always a sign of the presence of lice.

I had never before met with pediculosis capitis in the children of refined people and could hardly believe it possible that I had to deal with it here, but a close examination of the scalp showed—not lice, for, in an infant cared for as this one was they could hardly have been found, but *two* minute

ova clinging to a single hair. This confirmed my suspicions and, amid much weeping and wailing, the nurse, a very neat young American person, took down her hair for examination. No lice were found here, but hundreds, almost thousands of ova.

I inquired further, and found that the nurse-maid slept with the chambermaid, a black-haired young Irish girl recently immigrated, and who had only been in the household a few weeks. I requested to see this person alone, and a very cursory examination showed that her scalp was swarming with lice.

Having thus traced out the cause of the disease, we were soon able to eradicate it. I mention the case to show that we should regard no person or class as beyond the suspicion of any disease and that we should be able to diagnosticate or exclude such contagious and loathsome disorders, even in their incipiency.

Pediculosis vestimentarum, the pediculus of the clothes, sometimes called the "body" louse, lives on the clothing and deposits its ova there, only descending upon the skin for predatory purposes. It does not usually occur in any but the lowest classes, or in elderly persons unable to take care of themselves. It seems to attack those whose constitutions have been reduced by misery or debauchery. I think too, that the aged are particularly liable to the attacks of this parasite. You will rarely find the head louse in old persons or the body louse in the young.

When the pediculi are numerous they may be easily found, usually by turning back the clothing from the shoulders. When not found here, or when occurring in small numbers, an investigation of the seams of the clothing in this locality will usually reveal one or more of the living parasites or their ova or nits, minute, shining, ovoid bodies closely attached to the texture of the clothing.

As the parasite loves warmth, those portions of the surface closely pressed by the clothing usually show signs of their presence. When an elderly person, or one in indigent

circumstances, complains of pruritis without any primary lesions, as vesicles or papules, to account for the symptom, and when in addition scratch marks chiefly occurring across the shoulders or around the waist are noticed we may suspect the presence of these parasites and search for them with this point in view.

Pediculosis pubis usually occurs in middle life. Its commonest mode of transmission is sexual intercourse, the parasites escaping from one person to another very readily. It may also be conveyed from one bed-fellow to another, and I have met with the disease where it has pretty certainly been contracted in sleeping cars or from hired bathing clothes.

The crab louse may occur in other parts than in the pubis. I saw a case some years ago where an exceedingly hairy man showed these lice all over the hair of his body which resembled a sleeveless undershirt or cuirass and harbored multitudes of the parasites. The curly hair of the axillæ frequently becomes the habitat of the *p. pubis* and also the eyebrows and eyelashes, especially in children. I have seen them only very rarely in the hair of the scalp, on the lower limbs, or in the clothing. Their ova may sometimes be found on the pubes of very cleanly persons when the living parasites are not to be found.

Scabies is much more frequently encountered in this country, especially in our sea-board cities, than formerly. This is the result of the immigration and presence among us of late years of numerous Italians, Hungarians and Russians of the lower classes. We must now be prepared to meet this disease in patients of any class, even the most refined.

A few years ago I was consulted in the case of a little boy of five or six years, belonging to a well-known and refined family of this city for a peculiar and troublesome "eczema." On examination I found the lad showing small papules and scratch marks confined to, or at least much more numerous in certain parts of the body and limbs. The localities

chiefly affected were the flexor surface of the wrists, the flexions of the fore-arms, the anterior axillary fold, the nates and the papillary space. One or two lesions were also found upon the penis.

The localization of this eruption indicated its character with considerable certainty; but even if we had been in doubt, there were one or two of the narrow black sinuous lines a quarter of an inch in length and terminating in a minute vesicle could be seen on the flexor surface of the wrist showing the seat of the burrow made by the itch insect, and in the vesicle of which the parasite itself can usually be found and lifted out with a needle; as a scarcely visible yellowish-white rounded body, evidently animated. Of course under the microscope, when this is available, the acarus thus captured can be seen with all its characteristics.

In the case I have just mentioned I found on investigation that the little boy for some reason had been given a young Irish peasant, as his attendant, instead of a female nurse, and I soon detected unmistakable evidence that this person was the source from which the poor child contracted the disease.

A similar case occurred under my care, where a gentleman of unsound mind living at home, was inoculated with scabies from his male attendant, who was allowed to sleep with him.

The marks of scabies are so pathognomonic that we now rarely fail in our diagnosis. The localities attacked in this child are those where we almost always find the disease. They are those where the skin is soft and tender, or where, as in the buttocks it is kept warm. The lesions, one or two only, as a usual thing, which are almost always found on the skin of the shaft of the penis are highly characteristic. They arise from conveyance from the fingers which hold this organ during micturition. The breasts in women are often similarly affected.

We do not now-a-days, often see the lesions of scabies between the fingers. People wash more frequently than they used to, and except in foreigners, one rarely encounters the picture of scabies of the hands, given in the dermatological atlases. When occurring between the fingers we are most apt to find the burrow described above, which in doubtful cases can be depended upon to settle the diagnosis.

Before leaving the subject of the animal parasitic diseases of the skin, I wish to say a word or two with regard to the eruption caused by the bed-bug, *cimex lectularius*, and the flea, *pulex irritans*. Both of these pests are like the other parasitic diseases of the skin, more commonly met with in this country at the present time than they were twenty-five years ago. The effect of their bites is at first to arouse a wheal like that of urticaria. In some persons this quickly disappears; in others it is more or less persistent. When called to examine a doubtful case, if we find a minute puncture with effusion of blood in the centre of each wheal we may be pretty sure we have to deal with the ravages of one of these parasites.

In other cases, an hæmorrhagic macule is produced which resembles the purpuric lesion. Some years ago a series of mysterious cases of purpura were reported in an Irish medical journal, but in the next number of the journal an article by a colleague of the reporter of the cases who had also seen them, showed that they were only the results of flea-bites.

Coming now to the vegetable parasitic diseases of the skin, we must first consider the *tinea tricophytina* or ring-worm fungus. As this occurs on the surface generally, its characters are so well known that I need not recall them. I only wish to remind you that they are often conveyed from the domestic animals.

Ringworm of the scalp however, is a more important affection and one which is sometimes not recognized. In consideration of the fact that in our public schools, certainly those of Philadelphia, ring-worm is considered to disqualify

a child from attendance at school, and that a physician's certificate is required for his re-entry, it is desirable that we should be able to recognize this affection at an early date and in all cases.

Tinea tonsurans is a disease of childhood. We do not often meet it under six years, and I can not now recall having met a single case in an adult; excepting in the form of a patch occurring at the nape of the neck which we sometimes meet with in women.

Ringworm of the scalp begins to show itself as a mere scaliness, but soon the disease penetrates the hair follicles and infiltrating the hair shaft, this becomes brittle and breaks off while the scales push up around it so that the ringworm patch presents a nut-meg-grater appearance; broken off hairs surrounded by scales covering the whole patch. It is these broken-off hairs which give us the pathognomonic sign of ringworm of the scalp. If they are absent, we have no ringworm; if one or two only are present the disease exists.

Favus is a rare disease in this country. We generally find it among Italians. The characteristic odor of favus, that of a mouse's nest if present settles the question of diagnosis, otherwise the yellow, dry powdery crusts, each clustered around a hair and in old cases the cicatricial aspect of the older patches aid in the diagnosis.

Favus usually occurs in the scalp and among the young. It lasts a long while and is very rare among American born individuals.

Tinea versicolor is a rather common eruption. It is very slightly contagious in point of fact; although technically it is so, being caused by vegetable fungus which must be carried in some way from one person to another.

Tinea versicolor usually occurs in the form of brownish, slightly scaly patches or areas of disease spreading over the chest and sometimes the trunk, arms and neck. It rarely goes above the middle of the neck, below the elbows or below the groins or mid-thigh at most. It is itchy in sum-

mer but otherwise gives little trouble. It must be distinguished from vitiligo which is an incurable disease, while tinea versicolor is readily curable. Tinea versicolor is sometimes called "liver spots," but, it is needless to say, has nothing to do with the liver. There is a form of cleoasma, or brown discoloration of the skin, which may for aught I know, coincide with diseases of the liver, but this occurs chiefly upon the face and never occupies the same position on the body as tinea versicolor. Besides this, it is never scaly which the parasitic skin diseases always are to a certain extent. In vitiligo the disease is really a whiting of the skin. The intervals become darker, but are clearly seen as intervals. Besides this occurs in the hands and face.

Time fails me to describe the other contagious skin diseases. Some however, are only slightly so while others are theoretically contagious, but in practice we rarely see them conveyed from one to another.

An exception must be made, however, in favor of *impetigo contagiosa* a vesico-pustular disease of the skin, usually occurring in an epidemic form among the children of a neighborhood, but sometimes met with sporadically. We usually find one or several infants showing crusted lesions about the mouth, nose and chin, and at the same time upon one or more fingers. The lesions begin as small vesicles or vesico-pustules and spread from pin head to finger's nail size, sometimes coalescing. The contents are vesico-purulent and very often show as flaccid bulla. They are certainly contagious although adults are rarely attacked.

The other contagious skin diseases including some forms of eczema, impetigo, herpes zoster, psoriasis, furuncle, carbuncle, veruca necrogenica, pustula maligna, vaccinal rashes, molluscum contagiosum, verrugas, sycosis, etc., must be the subject of a later address. They present many problems not yet fully solved.

SYPHILITIC PLASTIC IRITIS; GUMMATOUS IRITIS (IRITIS PAPULOSA); GUMMA OF THE IRIS; AND SYPHILITIC SEROUS IRITIS.[1]

By G. E. de Schweinitz, M. D.,

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It happens that the wards of the Hospital now contain an unusual number of cases representing the various types of syphilitic disease of the eye, and illustrating in a peculiarly happy manner the varieties of syphilitic affections of the iris.

The first patient that I present to you, a man in middle life, is convalescing from a bilateral attack of plastic iritis. As I illuminate the pupillary area, you observe the irregular character of the pupil, the margins of the iris being bound down in several points to the capsule of the lens, forming posterior synechia. The irides are slightly discolored, but there are neither nodes nor swellings on their surfaces. The general red injection of the eyeball, and particularly the fine area of ciliary injection, the so-called circumcorneal zone, more or less characteristic of inflammation of the iris and ciliary body, has well-nigh subsided. The pain, the slight discoloration of the aqueous and the faint haze of the cornea, which at one time were present, have likewise disappeared.

Necessarily a question of paramount importance in the treatment of every case of iritis is the cause of the trouble. If an examination is made of the dispensary service of any large Hospital, where great numbers of cases of general syphilis come for treatment, with reference to the question how many of them have had iritis during the

[1] A Ward Lecture at the Philadelphia Hospital.

course of their disease, the percentages vary, according to Alexander, from 0·42 per cent. to 5·37 per cent. If, on the other hand, all cases of iritis which come for treatment are gathered together, and the percentage of those in whom the disease may safely be ascribed to syphilis is computed, the figures assume a very different proportion, varying, according to Alexander, from 28·7 per cent. to 75 per cent. Consequently it may be safely assumed that about 50 per cent. of the cases of iritis are syphilitic in origin.

Simple plastic iritis, or that variety which I have just exhibited to you in the convalescing stage, is probably the most common form. The well known symptoms of iritis are present; namely, pain, lachrymation, dimness of vision with cloudiness in the aqueous humor, circumcorneal injection, discoloration of the iris, immobility of the pupil, and the formation of posterior synechiæ; but the presence of an iritis of this character is not diagnostic of syphilis, in spite of the fact that a form of iritis quite indistinguishable in its clinical characters is frequently present in the secondary stages of syphilis. I want to impress upon you the fact that although syphilis is probably the most frequent cause of iritis, this form of iritis is not pathognomonic of syphilis. When it occurs during an attack of syphilis, it usually appears from six to eight months after the primary infection. Nearly always bilateral in the end, it is rarely simultaneously bilateral, one iris usually being inflamed before the other and more violently than its fellow. When treatment has been thorough, relapses, although they occur, are much less frequent than with the similar type of iritis which takes place under the influence of rheumatism. Like ordinary non-syphilitic plastic iritis, it may be acute, subacute, or chronic in its course, and, as has already been stated, it possesses no clinical characteristics from which its cause may be positively established. According to the belief of some authors, however, there is in these cases really a parenchymatous or condylomatous change not visible by ordinary clinical methods.

The second case which I show to you is a patient in middle life presenting perfectly characteristic lesions. According to the history, we learn that the initial infection took place in the late summer of 1891, or between six and seven months before the date of the present examination. His forehead is covered with coarse lesions resembling those seen in the tertiary stage of this disease. They should, however, be classed with the papular syphilids, and represent the type which is sometimes called the large, irregular papular syphilid, not an early manifestation of syphilis, but one that may come on towards the end of the first year or the beginning of the second. The left iris presents characteristic features. You observe that the inner border of the pupil contains three circumscribed, yellowish tumors, somewhat larger than hemp-seeds, slightly reddish on their apices and crossed by a number of fine vessels. The remainder of the iris is intact, and there is an absence of the posterior synechiæ and binding down to the capsule of the lens which were marked features in the other type. There has been some pain, some pericorneal injection, and some lachrymation, but these have not been prominent symptoms.

There is a *parenchymatous* type of iritis, and the disease usually receives the name of *gummatous iritis*. In contradistinction to the plastic iritis of the preceding case, it is characteristic of syphilis, and from it alone the diagnosis may be made. Although not a common form of iritis, it occurs with considerable frequency. Thus, according to Alexander, in a collection of 414 cases of iritis by various authors, 74 of them, or 17·8 per cent., represented the type which is known as iritis gummosa. Among these authors, for example, Schmidt found in 47 cases of iritis, 7 of this variety; Knapp, among 26 cases, 5; and Coccius, among 42 cases, 5. In the wards of this Hospital from June 1, 1887, to December 31, 1889, among 61 cases of iritis which I observed, there were 4 presenting this type of iritis.

The development of this form of iritis in spite of its name, does not belong to the late stages of syphilis, or to the stage

of gummatous formations in the rest of the body. It may begin directly by the formation of the little yellowish-red nodes, either at the pupillary border or at the ciliary border, or less commonly between the two in the tissue of the iris, or these phenomena may occur in the course of an ordinary plastic iritis, such as I first described to you. The points to remember are the characteristic appearance of the disease; the fact that it is pathognomonic of syphilis; that it does not represent a late stage of the disorder; and that for this reason it might be well to adopt the name which has been given by Alexander and other authors, *iritis papulosa*, so as to contrast it with another type of syphilitic iris disease, to which I shall now call your attention, namely, *gumma of the iris.*

The next patient which I present to you is a man about 50 years old, whose mental condition is such that it is practically impossible to obtain a satisfactory clinical history. He was brought here on the 28th of December with violent photophobia, both eyes inflamed, the conjunctivæ chemotic and the lids slightly swollen. He was cupped on each temple, and given saline purges and a free pilocarpine sweat. Atropine drops were instilled into each eye freely and ascending doses of potassium iodide were exhibited. Very shortly after his admission a curious type of delirium occurred, characterized by a fixed delusion of persecution, and afterwards manifesting itself as an irregular type of delirium tremens, although many of the symptoms were closely allied to those which are produced by toxic doses of belladonna. Under treatment the violence of his ocular inflammation gradually subsided, and although, as you see, there is still marked photophobia, I am able to demonstrate the lesions.

There is considerable haze of the cornea, and a large yellowish-white mass, not covered with vessels as in the other case of nodes upon the iris, which pushes its way toward the ciliary border and partially fills the anterior chamber. A few days ago there was, in addition to this, a layer of pus

at the bottom of the anterior chamber, forming a so-called hypopyon. The other eye is similarly affected at the present time, the deposit having rather a whitish than a yellowish-white appearance, and also with a tendency to spread toward the ciliary region. There are no other definite scars and no other gummata in this man's body, but in spite of this fact, I am inclined to look upon this as a gummatous deposit.

The presence of hypopyon associated with an iritis is very rare, and it is probably correct, as Alexander maintains, that whenever pus or blood appears in the anterior chamber, associated with syphilitic iritis, there is involvement of the ciliary body, or, in other words, an irido-cyclitis. This evidently is the case in this patient, and we are dealing here not simply with a lesion of the iris manifesting itself in a growth in the iris tissue which is probably gummatous, but also with extensive disease of the ciliary body, and, no doubt, if we were able to examine the interior of the eye, with lesions in the whole uveal tract.

True gumma of the iris belongs, as its name implies, to the late stages of syphilis, or, in other words, to the stage when gummatous deposits appear in other portions of the body. It presents the characteristics of a new growth, containing tissue that is but scantily supplied with blood-vessels, and with a tendency to undergo cheesy degeneration, leaving as the result of its presence, and after its absorption, a scar in the iris tissue to mark its original seat. Gummatous iritis, or, to use Alexander's term, iritis papulosa, on the other hand, presents one or more reddish-yellow nodules richly covered with blood-vessels, which readily absorb without the production of scars, the rest of the iris tissue being often practically intact. Even if we classify the present case as one of gumma of the iris, it should be remembered that we deal with an extensive disease of the ciliary body also, and probably with a gummatous irido-cyclitis so that the distinguishing features which I have just detailed are not typically manifest.

The last case which I show to you represents another type of iritis which occasionally occurs under the influence of syphilis, and which has been variously called *serous iritis, Descemititis* or *keratitis punctata,* receiving the last name because of an exudation in the form of dots, usually triangular in shape, upon the posterior layer of the cornea. It is an uncommon form in syphilis, and is generally preceded by some form of plastic iritis. Serous iritis occurs frequently under other circumstances. It is not rare with menstrual disturbances and in puerperal cases; it is one of the manifestations of sympathetic ophthalmitis, and may be brought into existence in the course of a variety of other diseases. Syphilis is only one of its causes, and the occurrence of serous iritis must not be ascribed to syphilis until a number of other conditions, some of which I have mentioned, are eliminated. It is nearly always accompanied by changes in the deeper structures of the eye: vitreous opacities, choroiditis, alteration in the composition of the aqueous humor, and probably a catarrhal inflammation of the glands of the ciliary body, as has recently been shown by some beautiful investigations by Collins, in England. Hence serous iritis is more accurately described as serous cyclitis, a name suggested some time ago by Priestley Smith. In contradistinction to plastic iritis, this disease is less likely to be accompanied by synechiæ. The anterior chamber may be deep in the beginning of the disease, but later on becomes shallow; the pupil is sluggish, sometimes semi-dilated, and the iris not necessarily attached to the capsule of the lens; the aqueous humor is often discolored; and the triangular collection of dots which you here see upon the posterior layer of the cornea, looking very much like minute drops of dirty water upon a clouded pane of glass, is characteristic. Sometimes the tension rises and the symptoms of glaucoma set in. You observe that this patient has other syphilitic lesions, namely papular syphilids belonging to a moderately late period, probably the beginning of the second year. As I have already stated to you, this form of iritis has developed

after a plastic iritis with which he was affected some time ago.

In all of the cases of iritis which I have shown you to-day the ordinary syphilitic treatment is efficacious. You may, in the earlier stages, give the protiodide of mercury in rapidly increasing doses, until there is slight tenderness of the gums. This may be discontinued then, and potassium iodide may be substituted; or, as many of the patients come when it is desirable to get a very pronounced mercurial impression at once, it is our custom to give them mercurial inunctions, followed later by potassium iodide. In a few instances hypodermics of mercury have been used. My own experience is very much against this form of medication. It seems very well established at the present day that mercury is the proper remedy for syphilis at all stages, although you know it was once taught that in the later or gummatous period, especially if there was much cachexia, this was not a suitable remedy. It is a curious fact, however, that in true gumma of the iris, at least if I may be permitted to base an opinion upon two experiences, the resorption of the new growth was much more rapid under the influence of potassium iodide in massive doses than under inunctions of mercury. This accords with the statement of Alexander. I certainly would not advise you to use potassium iodide to the exclusion of mercury; but I would be inclined, in a gummatous deposit in the iris, to place a great deal of reliance upon it. Remember, when I say a gummatous deposit I do not refer to gummatous iritis, but to the disease which I have described as true gumma of the iris.

Locally, atropine is indicated in all cases save in serous iritis when there is a tendency to increase of intraocular tension and the fear that glaucoma may develop. If pain is severe, leeching from the temple, hot applications and, if necessary, morphia, antipyrin or phenacetin, may be employed at night. Leeching not only helps to allay the pain, but by relieving congestion of the iris, permits the

absorption of the atropine and enhances its influence on the iris and the peripheral ends of the oculo-motor nerve.

In conclusion, and in *résumé*, let me say that about 50 per cent. of the cases of iritis are syphilitic; and that in secondary syphilis we very often have a form of iritis quite indistinguishable from the ordinary plastic form of the disease, and presenting, so far as ordinary clinical methods are concerned, no features which are diagnostic of the disease which may occasion it. We have another type of iritis characterized by the formation of one or more reddish-yellow nodes or papules, situated at the ciliary border, at the pupillary border, or sometimes between the two, while the rest of the iris remains intact, which absorb under anti-syphilitic treatment without leaving scars behind them, and which, in spite of their resemblance to gummatous deposits, do not belong to the late or gummatous stage of syphilis, but represent a parenchymatous type of iritis and the true form of syphilitic iritis. There is also a form of iris disease characterized by the development of a single deposit partaking of the nature of a new growth, which is a true gumma, undergoing the degenerations more or less characteristic of gumma, and belonging with other gummas to the late stage of syphilis. Finally, we may have during syhhilis, either independently of, or in the wake of, a syphilitic plastic iritis, an ordinary serous iritis, or, as it is often called, keratitis punctata. In this arrangement I have followed the classification given by the author whom I have several times quoted, and, as you see, have been able to demonstrate here in the wards the various types of the disease which show the accuracy of the classification.

THE THERAPEUTICS OF PAIN.[1]

By Thomas J. Mays, M. D.,

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Pain is disordered sensation. Sensation, considered objectively, is an impulse produced by an impression and carried along a sensory nerve. When sensation is raised above, or depressed below its normal equilibrium, pain is the consequence. In most instances there is reason to believe, however, that pain is the result of a depression rather than an elevation of nerve action; hence, all those agents which possess the power of elevating nerve tone are the best analgesics. Among these pain-relieving agencies foods must be regarded as the most efficient and most permanent since they contribute material wherewith the nerve fibre is built up; although they are not always the most practical because they are too slow in their action.

Very often the quickest analgesics are the agents known as counter-irritants, friction, mustard, cantharides, etc. Unlike foods these contribute nothing to reconstruct the disordered nerve fabric, but generate an organic molecular motion, or irritation in the skin, which is transmitted, or communicated through the contiguous tissues to the underlying nerve, enhances its molecular motion, and thereby removes it out of that condition in which it manifests its pain. The irritation-impulse on the surface therefore becomes a stimulation-impulse when it reaches the nerve.

That which is true of the action of these external applications is also true in a certain sense of these agents which relieve pain when introduced into the body. The great majority of them undergo no chemical change within the

[1] One of the Polyclinic Evening Course of Lectures.

body, but merely act through their mechanical presence. How, for example, does opium, the king of analgesics, act? This substance neither undergoes chemical change nor does it act like a food.

It has long been my belief that all agents which are not transformed chemically by the body behave like mechanical forces, and that they can be so regulated that in minimum quantities they enhance, and in maximum quantities they interfere with, or destroy bodily functions. The varying effects of friction give us an exemplification of this. Gentle friction produces a warm and healthy glow wherever it is applied, and, as we have seen, is a valuable adjunct in relieving pain. But when you allow a rope to slide through your hands very fast the friction becomes too intense, and a blister is the result. In the first instance you generate a force which moves in harmony with the bodily force, but, in the second instance, a severer application of the same agent awakens a force or disturbance which does not move in consonance with the body, and hence disease is the result. Some years after adopting this theory I undertook to demonstrate it by an experimental investigation. The frog's heart which is the medium through which these results can be shown, when isolated and adjusted to an appropriate apparatus, will, when fed with blood, milk, or some other nutritive material, continue to beat for a number of hours in succession, and register its beats on a revolving cylinder. The highest beats which the heart makes under these circumstances represent the best working capacity of the heart—they represent its utmost muscular strength, under the influence of its best nutrient—viz., blood. Now I found that by adding 1 part of morphine to 80,000 parts of blood, and transfusing the heart with this mixture the pulse beats rise perceptibly higher than they do under the influence of blood alone. For instance, under blood alone they rise to 15 mm. while under blood with the above named proportion of morphine they will rise 5 mm. higher. Showing that the heart is capable of performing more work under

minimum doses of morphine than it can under blood alone. On the other hand I found that 1 part of morphine to 1000 parts of blood will arrest the heart in systole. The morphine, not undergoing a chemical change or becoming oxidized must increase the heart's activity and paralyze it by its mechanical action in varying quantities.

That which is true of morphine I have also found to be true of aconitine, atropine, veratrine, strychnine, curare, conium, cocaine, brucine, theine, caffeine, guaranine, hydrastine, piperidin, gelsemine, digitalin, quinine, colchicin, cannabin tannate, kairin, alcohol, chloroform, ether, ethyl bromide, chloric ether, chloral hydrate, carbolic acid, and the mineral acids, the alkalies and the alkaline earths. All these give better results when administered in minimum doses than can be obtained from blood alone.

We have here then a picture of the mode in which these agents relieve pain. Like friction, or the hot poultice they supply mechanical motion to the disordered nerve, and raise it from a lower to a higher estate—from a state in which it gives rise to painful, to a state in which it gives rise to pleasurable sensations. Such a condition is best brought about by these pain-relieving agents in small or minimum doses. That is to say morphine, or opium relieves pain best when administered in stimulating and not in narcotic or depressant doses. That opium has wonderful sustaining or stimulant power in small doses is shown by the fact that about four millions of people are daily consumers of opium, and thrive under its use. The palanquin bearers and messengers of India, travel over almost incredible distances on nothing but a bag of rice, opium, and water. The Tartar couriers, when compelled to travel night and day over the hot deserts of Asia, use opium with their scanty supply of food. The same is true of cocaine, strychnine, tobacco, arsenic, etc., all supporting the bodily forces under continuous and exhaustive exertion.

Obviously enough, pain may be relieved by narcotic or maximum doses of these agents, but the question often is

how to relieve pain best without inflicting harm on your patient. Minimum doses will secure this end, although in emergencies of sudden and great pain you do not always have the time to adjust the proper dose, and under these circumstances the end justifies the means. It is easy to decide which of the two methods—whether giving a stimulant or a narcotic dose of an analgesic is the most rational and scientific treatment; in the former way the nerve is elevated from its diseased to its normal state, and by the latter it is still further depressed.

Elective Affinitiy of Drugs.—The fact that all our medicaments have a tendency to affect special structures in the body is too well known to require elaborate demonstration. This property of agents gives us the power not only to work on certain structures, but it enables us to pick out and work on different parts of the same structure. Thus curare influences the very terminals of the motor nerves and leaves intact the trunks of these nerves. Cocaine and theine affect the peripheral sensory endings, rather than the centres of sensation. Possessing the knowledge of the elective affinities of our therapeutic agents we must diagnose the exact seat of pain and then select the remedy which affects this area, and thereby relieve the disorder.

Special Applications.—Atropine has a special influence on the peripheral respiratory and cardiac nerves and is useful in all diseases affecting the respiratory and circulatory organs. First of all this alkaloid is perhaps most useful in asthma, in bronchitis, in bronchorrhœa, in pneumonia, and in all adynamic diseases of the lungs. In children, or in the aged, or in those suffering from exhaustive diseases like locomotor ataxia, cerebral diseases, where the lungs fill up with catarrhal material and where there is great distress in the chest as in threatened suffocation, atropia given hypodermically is a most useful remedy. When combined with strychnine its effects in asthma are wonderful, although in this case I think most of the credit is due to the strychnine.

Atropine is also useful in sciatica, especially when com-

bined with morphine as well as in the neuralgia which accompanies dysmenorrhœa.

Veratrine, an alkaloid derived from the seeds of Asagræa, has a special affinity for the peripheral ends of the sensory nerves. Its action when applied to the unbroken skin is slight unless it is rubbed up well with simple cerate or lanolin. In this form it penetrates the cutaneous surface, produces a pricking and a tingling sensation, and is a useful agent in relieving pain like neuralgia of the superficial nerves, among which are supra and infra-orbital; intercostal, sciatic and crural neuralgias. In myalgia lumbago, etc., its external application is followed with benefit. Internally its action is uncertain.

Brucine, one of the alkaloids of strychnos nux vomica, also acts on the cutaneous ends of the sensory nerves and in the form of an oleate may be used in itchiness of the skin, and in itching piles, with great benefit. When administered internally it acts like strychnine although it must be administered in larger doses to secure this effect and I have even known it to produce complete relaxation in the frog without any tetanus whatever.

Kava-Kava, a resinous body, derived from *piper methysticum*, and brought before the profession of this country, principally through the researches of the late Dr. Randolph, is a most useful local anæsthetic. It deadens the sensibility of skin and mucous membrane when externally applied, and has been applied with good effect in light operations of the nose, mouth and throat. Its resinous nature, however, makes its hypodermic injection difficult.

Hydrastine, an alkaloid of Hydrastis Canadensis, is a local anæsthetic when applied to the skin or when thrown under it by a hypodermic needle. Used in this manner it is useful in superficial neuralgia. Internally its administration has been followed by the most excellent results in the pain which accompanies gastric catarrh. Some claim good results from it in the pain of fibroid tumors of the

stomach. My experience with it has been so favorable in treating gastric pain that I can strongly recommend it.

Theine, the alkaloid derived from tea leaves, I found from a series of physiological and clinical investigations, to possess a decided local analgesic action when introduced subcutaneously. This action has been confirmed by many clinical observers since, who have used it in sciatica, lumbago, intercostal neuralgia, etc. Its influence is manifested very promptly, and it acts on the nerve beyond its seat of introduction, and without allowing any narcotic influence in the higher nerve centres.

Gelseminin seems principally to influence the sensory nerves and is chiefly useful as a pain-relieving agent in trigeminal neuralgia. Its action is also well spoken of in intercostal neuralgia, in ovarian neuralgia and in dysmenorrhœa.

Codein has been shown by Dr. Brunton to have the power of lessening the irritability of the intestinal nerves, and possibly also those of the respiratory organ. It is therefore useful in nearly all forms of abdominal pain like colic and ovarian neuralgia, etc. It is also useful in allaying the distressful cough of phthisis without disordering the regular movements of the bowels, as is the case with morphine.

Alcohol, as an external application, diluted with eau-de-cologne relieves headache, subdues the acute pains of pleurisy, and of other exterior affections. When given internally in large doses it aids in relieving the distressful and often painful breathing in acute pneumonia.

Ether is also a local anodyne and may be used for the same purpose as alcohol, although, on account of its great volatility it is less practicable. The ether spray is used locally to deaden sensibility in the performance of superficial surgical operations, as in the case of puncturing or incising the chest wall for the purpose of emptying a pleural effusion, or empyema, or as in the case of opening an abscess, etc. Dr. Packard has found that when inhaled under the first stage of its action, sensibility is so much im-

paired that many minor surgical operations can be performed at this time.

Chloroform is a powerful deadener of sensibility. Locally applied it relieves tooth-ache, neuralgia, rheumatic pains. A few drops inhaled from a handkerchief will often succeed in relieving the violent paroxysm of whooping cough; or the cough in other chest affections, as in phthisis or bronchitis. It must also be inhaled in the very severe pain of intestinal, biliary, and renal colic, in severe neuralgia, in the pain produced by the pressure of aneurism, and during labor. Deep chloroform injections are also recommended in sciatica.

Chloral Hydrate is very analagous in its action to chloroform. It has been used to relieve sciatica, and some years ago was lauded as a pain reliever in parturition. Its principal usefulness is, however, in its power to produce sleep.

Ammonia muriate has long enjoyed the reputation as a remedy in various forms of neuralgia. Dr. Anstie speaks well of it in migraine, and the facial neuralgias of youth, as well of its influence in removing myalgias. I have long been in the habit of combining this salt with quinine in the treatment of the various aches and pains sequential to malaria, believing that it enhances the action of the latter drug. On account of its special action on the hepatic secretion it is of great value in dissipating pain in the region of the liver—a common condition in those suffering from chronic malaria.

Bismuth sub-nitrate is a popular drug in the treatment of painful disorders of the stomach and of the intestines. It has a sedative effect on these surfaces and therefore acts much like opium, without manifesting the marked narcotic effect of the latter agent. It is useful, therefore, in intestinal catarrh of children, in dysentery, in acute and chronic inflammation of the stomach and in gastric ulcer.

Carbolic acid is one of our most valuable drugs. Besides its local anæsthetic influence, it possesses a powerful antiferment action. Locally applied, diluted with water, it has a most beneficial action in the itchiness which accompanies

many cutaneous disorders. A drop or two applied with a little cotton cures toothache. It forms the most important ingredient in Dobell's solution, which is so useful in the form of a spray in treating acute and chronic coryza, as well as in other nasal and post nasal disorders. In acidity and catarrh of the stomach it has a well deserved popularity. In these affections it antagonizes the hyperfermentation, and allays the irritability of this organ. Its action is enhanced by combining it with lime water.

Zinc oxide on account of its special influence on the peripheral sensory nerves is administered in various neuralgias or seats of pain. It is especially to be recommended in the painful spots on the abdomen or thorax which accompany spinal irritation in nervous females.

Iron, the salts of sodium, potassium, calcium, and the phosphates abound in the system or as parts of the same. Iron and sodium exist in the blood, potassium in the muscles, calcium in the bones. All these substances act differently in their capacity as pain relievers, from most of the agents which we have thus far considered. They act like food, they bring material wherewith the shattered and depressed nerves are built up, and by reestablishing the former integrity of these structures they enable them to resume their normal functions.

Iron then builds up the blood, and thereby supplies the hungry and painful nerve with more food. By curing the anæmia so incidental to our state of civilization, iron relieves the pain dependent on this condition.

No agents deserve greater popularity than the hypophosphites and the phosphates of sodium, potassium, and calcium in the treatment of neuralgias. By supplying the natural constituents of the various tissues they restore them to their former vitality.

The last, but not the least valuable, agent which I shall name this evening as a pain-reliever, is cod-liver oil. Fatty food of all kinds has long been vaunted as having the power to antagonize pain, and cod-liver oil, when it agrees with the patient, is the form of fat which produces the greatest benefit. It is, of course, most applicable in the

chronic forms of pain, like those of sciatica, of myalgia, of rheumatism, of gout, of alcoholism, etc.

In conclusion I beg to say that the comprehensiveness of the subject of the therapeutics of pain has made it impossible to traverse the whole ground which presents itself during the time alloted. I hope you will pardon the meagre detail which I was able to give to each of the agents which comprise this important group of remedial agents and trust, however, that what I did say I succeeded in making plain to your understanding.

A PLEA FOR EARLY DIAGNOSIS IN THE PELVIC DISEASES OF WOMEN.[1]

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Gentlemen:—Skill in diagnosis is the highest accomplishment to which the physician can attain, and the degree to which this faculty is possessed and developed will forecast the future measure of his success or failure. But failure of a medical career from a lack of diagnostic skill is so far reaching and disastrous in its consequences that no one who aspires to enter and practice the profession of medicine should fail to cultivate and apply to the uttermost extent the power to recognize and differentiate disease. That "Knowledge is Power" is nowhere more easily demonstrated than in the advantage which the thorough diagnostician possesses over the physician who is less skilful and painstaking in his efforts to learn the true condition of his patient.

If the question were submitted to me, I would urge the medical student whom I found to be lacking in the qualifications necessary for the development of diagnostic skill, to relinquish at once the study of medicine and take up some other vocation or profession in which he might attain greater power for usefulness; and I believe that would be

[1] An Evening Lecture at the Polyclinic.

wise and humane legislation which would prevent the advancement of those students who were found wanting in this faculty. It is not, however, to medical students, or at least not to undergraduates, that I am now speaking but to those who have, by contact with disease, already learned to appreciate the value and the necessity of further practical knowledge. This is evidenced by your presence at the Polyclinic, where opportunity is afforded to the physician to supplement what has been done at the undergraduate school and to strengthen the places which he has found weak.

It is my purpose in this lecture, and in several others which are to follow, to call your attention to some of the traditional sophistries which have been handed down to us from a former generation and which have led to some serious errors in diagnosis. One of the most important of these is the so-called menopausal hæmorrhage.

By a strange reasoning, which may partly be explained by the fact that it occurred in the days when phlebotomy was regarded as almost a panacea, the idea that metrorrhagia at the change of life is physiological, gained a foothold in the profession, and through it was engrafted on the popular mind; and it has extended its evils to the present time, for many physicians still believe that the hæmorrhage is beneficial at this period, that the blood loss is depuratory and that it protects the vital organs from injurious or even fatal congestion. This is one of the most dangerous fallacies that was ever advanced in medicine, for there is not the slightest ground, either in reason or in statistics for such an erroneous belief. If it were true, more cases of metrorrhagia ought to be met with at this period of life, or more women should suffer from serious cerebral and other internal congestions, when the bleeding does not occur. Statistics show that the mortality during the five years from forty-five to fifty is no greater than the ordinary increase for each five years of advancing age, and that it is not any higher in females than in males for the same period of life.

A careful analysis of thousands of cases of which I have notes, shows that the percentage of cases of metrorrhagia is

less in those from forty to fifty than in those from thirty to forty years of age. Further, in those cases in which the cessation is gradual and without more than the ordinary flow, better health is enjoyed than when the so-called critical floodings occur. In health, the decline and cessation of the menstrual function takes place without turbulent activity. It should therefore be an axiom in gynæcology that metrorrhagia at the menopausal age, as at other periods of life, is never physiological, but always the result of local disease. The acceptance of this principle would save much suffering and prolong life, for we would then endeavor to discover the source of the hæmorrhage before the disease had become incurable, instead of excusing our lack of care or want of knowledge, and quieting the patient's anxiety, with the statement that, "It is the change of life."

To illustrate and emphasize the danger which comes from delay in diagnosis as a result of the prevalent belief that metrorrhagia about the menopause is physiological, permit me to cite a few marked instances of many that have come to my notice.

Mrs. X. was forty-seven years of age, married and had three children, the youngest of whom was twenty-two years old. She had a miscarriage two years after the birth of the last child, but since then she had not been pregnant. In the interval between the occurrence of the miscarriage and the beginning of the present trouble, she suffered occasionally from leucorrhœa and slight metrorrhagia, with pain in the sacrum. But to this she gave little attention and considered herself well. About three years before she consulted me she began to lose more than the usual amount of blood at her catamenial periods, and the quantity gradually increased with each recurrence, until it amounted at times to a severe flooding. She then began to have a watery fetid discharge in the intervals. She now became anxious regarding her condition, but her fears were quieted by the "wise women" of her circle, who said it was "change of life," and advised her to let "nature take its course." And nature did take its course, for the metrorrhagia and the fetid discharge con-

tinued, and she became cachetic. Being now alarmed she consulted a physician, but one who was unfortunately biased in favor of the theory that metrorrhagia at the age of the menopause is physiological. He made an examination, and found that the cervix uteri was hypertrophied and lacerated, and that the body of the uterus was also somewhat enlarged, but failed to discover the real cause of the hæmorrhage. He informed her that this was not enough to produce the hæmorrhage, that it must be the result of the approaching cessation, and advised her not to worry about it. This was nearly a year previous to the date at which she first consulted me. When I saw her she impressed me as one in the last stage of malignant disease, and I imagined that I could detect the peculiar odor of cancer, so great were the anæmia and cachexia. She had lost all desire for food, was emaciated, and had become so weak that she could scarcely sit up without fainting and was in such constant dread of sudden death that she had become painfully hysterical. I found the cervix uteri considerably hypertrophied, soft and lacerated. The os was patulous and dilatable, and the mucous membrane of the cervical canal congested and abraded. The body of the uterus, as outlined by conjoined manipulation, was found as large as at the third month of gestation, symmetrical, smooth, and rather soft. I next attempted to pass the finger into the uterine cavity, but it was arrested at the internal os by a rounded soft tumor. This manipulation so increased the hæmorrhage that it was necessary to tampon the vagina to control it. I made a diagnosis of degenerating sub-mucous fibroid tumor, but feared it might possibly prove to be a malignant growth from the mucous membrane. The patient entered my private hospital and after the necessary preparation the tumor was removed. It proved to be a fibroid as large as a duck's egg, and it was a benign growth. Exploration of the uterine cavity with the finger after the operation was completed, showed the organ to be free from disease. Her recovery was uninterrupted, and there has not been any hæmorrhage since

the removal of the tumor; she has not even menstruated, the menopause having been established.

Permit me to refer to another danger to which women suffering from metrorrhagia at this period of life are exposed, by the fallacy of regarding the hæmorrhage as physiological. Cancer of the uterus is regarded by many physicians as necessarily fatal from its incipiency, and they therefore look upon operative interference as futile, and as unwarrantably subjecting the patient to the pain and danger of a useless effort to eradicate or even to palliate the disease. Now suppose that this patient had consulted some one who held such views, and that he had concluded from the history, symptoms, and general appearance of the patient that it was a case of cancer—which it resembled very closely—and then on superficial examination, the soft mass in the cavity of the uterus had been pronounced malignant, and non-interference advised. The patient would certainly have succumbed to the hæmorrhage caused by a benign and easily removable tumor. That is exactly what did occur in the following case.

Not long ago I was called to a neighboring county to see a patient who was said to have cancer of the womb. I found her in a dying condition and presenting the appearance of one in the last stage of carcinoma. The history I obtained was as follows:

Two or three years previously she began to lose more than the normal amount at her menstrual periods. This had increased until the blood loss amounted at times to a "flooding," and there had also been a watery, fetid discharge. She had in the meantime been under the care of her physician who at first ascribed the hæmorrhage to the change of life, although later he had prescribed remedies for the purpose of controlling the bleeding. But an intelligent examination had not been made, nor had counsel been asked until this late stage of the disease had been reached. On examination I found the vagina filled with a degenerating fibrous polypus which was attached by a small pedicle within the uterine cavity. It was so easily removable and so tempting that I at once, while making the examination,

broke the pedicle with my fingers and removed the tumor, which was about the size of the fist. The operation did not require three minutes' time, nor the removal of the patient from her bed. The removal of the tumor, however, did not have the slightest effect upon her and she died a few days afterwards, another sacrifice to traditional error!

Why should there be a necessity for hæmorrhage at the menopause? It has no analogy in comparative physiology, and it does not relieve symptoms. On the contrary those very women who suffer with irregular hæmorrhages at this period, are the ones who are most troubled with the so-called nervous signs of the approaching change of life, as flushings, etc. Apoplexy is very uncommon in the female at this age; and when it does occur it probably results from anæmia and not from plethora. I believe that women suffer less about the menopause since venesection has been abandoned than when it was practiced regularly. Let me relate the following case in illustration, which, with others, long ago proved to me that it is to the pathological condition which results in the hæmorrhage, that is due the various nervous disturbances common to this period and which are usually ascribed to the age of the patient.

Mrs. W. first consulted me in January, 1878. She was then forty-three years of age, and had six children, the youngest being twelve years. She had suffered from menorrhagia since the birth of her last child, and recently from metrorrhagia, which would amount at times to enough to be designated a "flooding." She also had occasional attacks of rectal hæmorrhage during the last few years. In addition to the loss of blood, she suffered intensely from the burnings and flushes, vertigo, palpitation, dyspepsia, and other nervous disturbances, to which women at this age are specially liable when the functions of the generative system are not performed properly.

The uterus was found large, soft from engorgement, and sharply retroflexed, but it was mobile and not tender on pressure. The cervix was involved in the general congestion and hypertrophy of the uterus, but was not otherwise diseased. The sound indicated a soft, hypertrophied

endometrium. Except in partaking of the general congestion, the pelvic tissues and organs around the uterus appeared to be normal. Examination of the rectum, however, showed the hæmorrhoidal vessels to be in a varicose condition.

The plan of treatment followed in this case was one designed to restore tone to the uterine and pelvic vessels and tissues, to thereby reduce the amount of blood circulating in that locality; and it consisted in the reposition of the retroflexion and the occasional use of the curette, with the application of the appropriate remedies to the uterine cavity, together with the general medication indicated. It is sufficient for my purpose to state that as the metrorrhagia diminished and the catamænia became more regular, the nervous and other symptoms subsided; but when the hæmorrhage would return, which occurred a number of times during the next two years, at the end of which time the menopause was established, the nervous symptoms would return. After the cessation of the catamænia, the patient remained well, until she began again to lose blood from the rectum, when the nervous symptoms returned with such severity as to suggest to her physician that the hæmorrhage was probably vicarious, or supplementary to the menstrual flow. The vertigo was especially marked, so that the patient was in dread of apoplexy, and thought that the hæmorrhage was conservative. She was bled from the arm, on several occasions. But this had no other effect than to quiet for a time her disordered mental condition, and she finally consented to submit to the removal of the hæmorrhoids, and that operation was performed in 1883. She has not lost any blood since, and she informed me recently that she had continued in excellent health. I do not think it can be said that the metrorrhagia in this case was at any time physiological, or that the hæmorrhage from the rectum was conservative, in protecting the patient from apoplexy or other grave diseases.

To further show the danger of neglecting patients who are suffering from metrorrhagia at the period of the meno-

pause, let me relate the following cases of malignant disease:

The first case was sent to me by Dr. D. P. Pancoast of Camden, N. J. The patient was forty-two years of age and a widow. She had had five children, the last one six years ago. Her labors had been unusually difficult. About two years before I first saw her, she found that she was losing more blood at the catamænial epochs than usual, and that her strength was failing as a result. The irregular hæmorrhage was attributed to the "change of life," and the patient was advised to submit to the loss until the menopause should have been reached. But the hæmorrhage rapidly increased until she was rarely free from it, and she was extremely emaciated when Dr. Pancoast was consulted. The doctor found the os uteri widely dilated and a mass of tissue, polypoid in form, projecting from it; this he suspected to be malignant. My examination confirmed his suspicions, for the growth was of a very friable, vascular character, and on passing my finger within the uterine cavity I found that it originated from many points on the surface of the mucous membrane. The cervix was not involved in the disease, and the body of the uterus was mobile. Hysterectomy was considered, as the disease seemed to be confined to the uterus, but we concluded that the patient was now so exhausted that she would almost certainly succumb to so radical an operation. To check the hæmorrhage for a time and rid the patient of the degenerated and decomposing tissue which was rendering her life a burden, and with the hope that she might regain strength, the diseased tissue was scraped away and the surface cauterized.

The improvement of the patient was so rapid that within a month she was able to visit a friend who lived at a distance. The hæmorrhage and other discharges had ceased and her color and weight had been improved to a remarkable degree. But the respite was only temporary, as we had anticipated, for a few months afterwards she died of acute peritonitis, which, I think, resulted from hæmorrhage into the peritoneal cavity. Hysterectomy should

have been performed as soon as she had recovered sufficient strength, but she wished to defer it.

The second case was that of R. X., who consulted me in March, 1880. She was then aged forty-two years, married, had two children, the youngest ten years of age. Since the birth of the last child her menses had been rather profuse, and she had some leucorrhœal discharge, with slight inconvenience in the pelvis and pain across the sacrum. Six months previous to the date at which I first saw her, she had an attack of metrorrhagia which lasted two weeks, and this had been repeated frequently within that time; she had not been able to go out of the house, and rarely to leave her room, for three months. She had lost more than twenty pounds in weight, had become pale, and suffered from great nervous prostration.

Examination showed the uterus to be slightly retroverted, considerably enlarged, and not freely movable. The cervix was somewhat hypertrophied, but was otherwise normal. The sound was passed through the internal os with difficulty, on account of some obstruction met with at that point, and indicated the uterine cavity to be large, soft, and rugous; and its withdrawal was followed by a very fetid, sero-purulent discharge. I diagnosticated fungous hypertrophy of the endometrium, but feared, from the degenerated condition of the tissues, that it might be malignant. I at once decided to dilate the cervical canal and remove the disease as far as possible. Tents were inserted, and when they were removed, twenty-four hours later the os was so patulous that the index finger could be readily introduced into the uterine cavity, which was found to be festooned with ridges of hypertrophied tissue. This was soft and ulcerating on the surface, but it was firm at its attachment to the uterine wall, but not friable. I removed, by means of the polypus forceps and the sharp curette, all the redundant growth, aggregating enough to fill the palm of my hand, and then thoroughly cauterized the surface with nitric acid.

As soon as the patient had recovered from the immediate effects of the operation, I placed her upon the enforced

discipline and diet of the "rest treatment," together with tonic and alterative medicines appropriate to her condition. Antiseptic douches and an occasional application of equal parts of Churchill's solution of iodine and pure carbolic acid to the uterine cavity, completed the local treatment. Three months after the operation, she had gained fifteen pounds in weight, and was otherwise so much improved that she felt her health had been entirely restored. There had been no return of the metrorrhagia, and the cavity of the uterus appeared to be free from disease. She then went to spend the summer in the mountains of Pennsylvania, and when she returned in the fall she looked the picture of health, and assured me that she was as well as she had ever been. Careful examination was made at this time, and I failed to detect any signs of a return of the malady.

Twelve years have now elapsed since the operation, and this lady enjoys good health; there has not been the slightest evidence of a return of the disease, and examination of the uterus confirms the outward appearances, for it seems to be in normal condition.

The microscope showed these two cases to be of like malignancy ("endothelial cancer"), differing only in the stage of the disease.

These cases present the two extremes of the disease, and very forcibly illustrate and strengthen the position which I have taken as to the cause and treatment of metrorrhagia at this period of life; and they show the value of seeking for and removing the cause of hæmorrhage without delay. For if the same decisive plan of treatment had been followed in the first case as in the second, when the first signs of the pathological change were manifested, the life of the patient very probably would have been prolonged, and possibly saved, *i. e.*, the disease eradicated; for there is a possibility that this form of disease in this locality (uterine cavity) is not essentially malignant in its incipiency, but only becomes so after the health has been undermined by a prolonged drain upon the system, thus destroying the inherent resisting

power, or plastic force of the tissues, and allowing an activity of a lower type to take its place.

But how shall we discover the disease in its incipiency? This can never be hoped for until we, as physicians, come to regard all irregular discharges from the uterus as the result of local disease, requiring immediate intelligent investigation, and teach women to so regard them. In this matter the physician must be the educator. It is true that in many cases the disease is so far advanced before the stage of ulceration is reached, upon which the discharges of cancer usually depend, that after these appear little, except to palliate the symptoms, can be hoped for; but there are also many exceptions; some in which the disease begins as a superficial ulcer; others in which the growth partakes of the nature of a papilloma in its early stages, and in these cases very much towards prolonging life and alleviating suffering may be accomplished. Then, by healing all sources from which these discharges originate, of whatever pathological character, it is possible that the soil, fertile for the development of the malignant affection, may be destroyed, and its growth prevented.

THE OPERATIVE TREATMENT OF EAR DISEASE.[1]

By B. Alex. Randall, M. D.,

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Gentlemen:—I have taken the subject of the operative treatment of ear-disease for our talk this evening, because it is a matter as to which very vague ideas are current and rather extreme claims are made. Like every branch of surgery, otology has made marked advances during the past decade or more, and there has been a wide dissemination of knowledge and a realization by many workers of results which formerly were restricted to the few. Bold-

[1] One of the Polyclinic Evening Lectures.

ness and radicalism are pressing close upon those conservatively inclined, and standing ready to denounce as timid and fossilized the methods long in vogue, claiming that they are a hinderance to progress and a blemish upon the standard of advance. Hesitation and temporizing have lessened all along the line, prompt action has snatched many a success out of the shadow of failure, and increased resort to operative methods has increased the skill and hence the achievements of the operators. In the advances of head-surgery, the otologists have done their share, both in pointing the way and in themselves pursuing it; and they will still further contribute to the saving of life, as in the past, by preventing the development of many life-imperiling conditions consequent upon ear-disease.

What, to-day, is the field of operative ear surgery, is destined soon to be much broadened; and it must, therefore, be my duty to point out some of the cautions and limitations as well as the lines of present and future success. Anatomy and physiology must here, almost more than in other domains, constitute the basis of advance; and such works as Politzer's "Dissection of the Ear" (recently translated into English) will exercise great influence. We have all studied the anatomy of the ear and may be able glibly to describe its parts and functions; but the relations of parts are understood by few of those whom I receive as pupils, and only by constant study and review are they retained ready for employment by those who have fairly mastered them. For this the current text-books, with often inadequate or erroneous teaching, are in a measure responsible. The delicacy of the organ and the great importance of its surroundings, limit the freedom of intervention which would be allowed as good surgery in other directions; and aseptic methods frequently fail in this complicated tract to secure or maintain freedom from infectious influence; hence we must often content ourselveswith measures less radical than we might have planned and otherwise desired.

The conditions demanding relief by operative procedures are steadily increasing in number as the methods of diagnosis improve, the limitations of more cautious practice

grow more evident, and the lists of successes by operation grow longer, more reliable and striking. Increased experience permits of the better selection of appropriate cases, and surer and higher success in those operated on; and those who conscientiously and carefully pursue the matter will doubtless find many a case before which they would have stood helpless, in which they later will intervene with confidence in the wisdom of such a course and the probability of success. Yet there is the other side to the question; and the cases are growing more distinct in which operation is contra-indicated, because better results are to be otherwise attained, or the small success which is possible does not justify the risks, slight as they may be.

A word must be said in this connection as to the *instrumental removal of foreign bodies* and the more common wax-masses from the auditory canal. The expert, equipped with the most perfect instruments and skilled in their use, regards extraction-efforts as precarious, generally needless and often wholly unjustifiable. Unfortunately, the less skilled a man is in aural surgery, the readier will he sometimes be to attempt what is certain to result not only in failure but in disaster. A hundred patients are injured (some fatally) by unwise intervention, to every one that suffers any serious consequence from the presence of undisturbed masses in the ear. Only after syringing has been fully employed, with an appropriate syringe, good illumination and a well-straightened canal, should instrumental extraction be considered by the skilled surgeon; and the attempt should be begun with the clear determination to abandon it rather than do injury to the important structures imperiled. It is a less serious measure to detach the auricle and lay it with the soft tissues of the canal forward so as to gain ready access to the depths of the meatus, than to work blindly through the narrow natural passage.

Various conditions of the external ear have always been treated by operative intervention and need no special consideration now; so we will pass to those conditions where operation is newer, more frequently resorted to than formerly, or has undergone important modification.

The importance of *inflammatory lesions* of the ear has become more and more distinctly evident, the numerous consequences of neglect grow more clear and sure, and the indications and measures for combating them are being steadily better defined. *Earache* is less often regarded as a mere pain to be treated by dropping laudanum into the ear—an innocent, though disturbing result of teething; there are more practitioners who recognize their duty to learn something of the degree and extent of the inflammation of which it is a sign, and to combat it rationally and carefully, lest it pass from a readily controllable, into a serious and threatening condition. Its origin in the naso-pharynx and the need of treatment there, the importance of rest and constitutional measures in many cases, and the value of heat and cold in the control of the inflammation as well as of the consequent pain, are becoming better understood. More physicians know what the drum-membrane should look like, and can recognize the bulging which may call for incision to evacuate the secretion within it before the pressure reaches such a point as to cause penetration in more serious directions. Conservatism warns against even this simple operation when the eustachian tube can be freed, so as to furnish the natural drainage and the pain can be controlled by heat or similar measures; but it should be clearly understood that its due performance will save more lives, as well as suffering, than all the rest of the operative surgery of the ear. Thousands of cases now pass on to serious conditions for lack of it, and may not be saved by the more striking and interesting trephinings for mastoid or intra-cranial abscesses which later become necessary.

Inflammation of the mastoid, as evidenced by deep-seated tenderness and pain, redness, œdema, pressing forward of the auricle, fluctuation or the bursting out of pus, gives in most cases unmistakable call for operative interference. The first uncertain evidences should be vigorously treated by hot syringing of the ear and heat or cold behind the auricle; but delay is dangerous and half-measures may be worse than useless. Incision through the periosteum of the mastoid

should be made as soon as fluctuation is certain; and general anæsthesia is mostly necessary so as to admit of full exploration. A sinus in the bone or carious areas upon its surface may demand the sharp-spoon or the drill—the entire mastoid process may be found full of pus and granulations; burrowing along the canal or down the neck may have occurred and form serious impediments to prompt healing, or at times the severity of the symptoms may call for trephining or chiseling away of bone that is apparently healthy in order to lay open the antrum. In this direction recent years have seen many changes of view and method, and the epidemics of influenza have forced the question of operation on otologists who had rather sedulously avoided it. Those who do open the bone in all cases where they find any indication for it, are piling up long series of cases with satisfactory results; while the more conservative have increasing reason to question whether they have not sacrificed lives by their inaction. The true mean doubtless lies between those who do scores of trephinings each year and those who find few if any calls for the operation in extensive practice.

As to the method, an equal disagreement is found—some drilling to secure a drainage tract for pus in imitation of nature's method, while others advocate the rational but extreme measure of laying freely bare the whole mastoid, chiseling or gnawing away its whole cortex and then pressing on through the cells to the antrum and perhaps removing the back wall of the meatus and the external wall of the tympanic attic. The last is best done by laying the auricle and soft tissues of the canal forward, when the whole tract will be open to ready attack. Still more—the operation can be pressed further, if indications are found, and the dura laid bare by removal of the roof of antrum and tympanum to seek an abscess beneath the dura or within the temporal lobe, or it can be carried back to search for a cerebellar abscess or to lay bare the lateral sinus for the evacuation of a septic clot. Comprehensive as are the possibilities of this operation and readily adaptable to a wide series of varying

cases, it is questionable if separate operations will not be better when the cranial cavity is to be explored for pus.

Asepsis of the wound tracts is more likely to be secured in those cases where no purulent collection is found within the cranium if they are independent of the mastoid wound, and the greater depth of the wound may prove a serious limitation to its proper accessability. The discussion of these points is of importance as making clear the point that otitic brain abscess always requires mastoid trephining to evacuate the pus almost invariably present there—cases of cerebral abscess having been successfully operated only to succumb to the neglected pus collection below. Although cases are met in which it is requisite to uncover and perhaps open and evacuate the lateral sinus, this structure is usually to be carefully avoided, since injury to it may lead to thrombosis or septicæmia or give rise to hæmorrhage compelling prompt tamponing and the abandonment of any unfinished part of the operation. As the location of the sinus is very variable, its avoidance is not always possible; but Körner has shown that it is more anterior and superifical—more in the wound track—in the brachycephalic, those with short, broad heads. In such skulls the middle cerebral fossa is also low—and both of these conditions are generally more marked on the right than the left; so the operator can form some idea from the mere measuring of the head with calipers as to where lies the lateral sinus in the temporal bone which he is about to attack.

The great anatomical variations in the size and structure of the mastoid process in adults, not to speak of its undeveloped conditions, makes the problem ever an uncertain one as to whether and where pus is present, when it does not appear upon the external surface. Caries of the inner surfaces may be in progress and be working fatal mischief, with no exterior sign except deep-seated pain and tenderness. In another important series of cases pus may break through the inner surface of the mastoid process into the digastric fossa and burrow deeply in the neck, following the sterno-cleido-mastoid or the great vessels. In such a case it may be necessary not only to open and drain the collection in the

soft tissues, but to perforate the sound outer table of the bone in order to find the sinus on its opposite surface and to scrape out the granulation tissue which may fill the process. The after treatment of these cases is also a disputed point; drainage and irrigation being the rule, but some operators endeavor to remove all pathological tissue in the radical operation and to close the wound for prompt healing. Here again the exigences of varying cases permit no fixed rule; but the radical men have the logical side of the arguement and theoretically at least, we must adopt their ideal. Its realization is not always safe or possible—happy as are the results which can be thus sometimes attained.

Another phase of operative work centers around the *excision of the drum membrane and ossicles.* Two very dissimilar conditions are thus attacked—the chronic suppuration of the upper tympanic cavities on the one hand and the chronic progressive deafness of sclerotic middle-ear catarrh on the other. In the former case the membrane is often largely destroyed and with it the functional value of the ossicular chain. Caries is often present on the malleus neck or head and on the body of the incus, as well as on adjacent surfaces, which their useless presence makes difficult of access. In the interest of better drainage and as a removal of necrotic tissues, the measure is rational and often valuable. The hearing after it may be little short of normal, although it has generally been reduced very greatly by the pathological process and may be unimproved by the operation. Schwartze, Kessel and others who have practiced the measure in a hundred or more of cases, have rarely seen disadvantage from it and, like its more ardent American advocates Sexton and Burnett, have obtained some brilliant results in the arrest of discharge and the improvement of the hearing and the general symptoms. Others, like myself, have been less fortunate, and realizing little benefit in any of the cases so treated, practice the excision only where it is unmistakably indicated, looking for no damage from it at the worst, but small advantage in the majority of cases. Stacke's method of operating with the auricle laid forward instead of through the narrow depth of the natural canal, has prob-

ably decided advantage, and seems to me to have been really the proper course in each of the half dozen cases which I have done, permitting as it readily does, of the laying freely open the attic and aditus and antrum by the chisel and spoon.

In the other class of cases—those of *sclerotic deafness*—the general opinion is not very favorable to the operation. Anchylosis of the stapes is the lesion held responsible for many of these cases, and upon it the removal of membrane, malleus and incus can exercise little effect. As a means of relieving the labyrinthine pressure due to retraction of the malleus handle and as the most successful way of maintaining an opening for the admission of sound waves directly to the windows of the labyrinth, it is indicated in a certain number of cases; and as we learn by Gelle's and other methods to diagnosticate the seat of the obstruction and thus decide between this and the mobilization of the stapes, otologists will feel more justified in doing the operation and will doubtless obtain less varying results. My own small experience of it has not aroused any enthusiasm for it.

The mobilization of the stapes or its extraction proposed by Kessel and done by him and others, is another radically logical measure which is on trial. Miot, especially, claims good results from mobilization in a large series of cases with no instance of damage, but the gathering experience is not at all unanimous as to the practicability, utility or harmlessness of the method; still less as to the removal of the stapes, which opens the labyrinth to the risks of serious or fatal inflammation.

While, therefore, modern otology is pressing the study of its problems with diligence and boldness and seeking to realize results as striking as those which ophthalmology enjoys in glaucoma iridectomies and cataract extractions, the day has not yet come when we can claim full parity; and conservatism as, well as boldness, has its place in furthering this desired condition.

Clinical Notes.

The Condition of the Cervix as an Indication for the Use of a Pessary.—When the proper relation between the uterus, its supports, and surrounding tissues is maintained, a normal cervix will present to the examiner's finger a body of nearly cartilaginous density, with a smooth and uniform outline. The finger, when swept around its circumference, meets with but little resistance in doing so, and recognizes a short column projecting from the upper or anterior vaginal wall with its anterior, posterior and lateral faces rounded the one into the other, and presenting no folds or ridges; while the inferior portion presents a convex surface containing the external os, which convex surface rests lightly upon the posterior vaginal wall. After pregnancy, when perfect involution has occurred, and the same normal relation between the uterus and its supports continues a similar condition of the cervix will be found to exist, although it may be modified by a laceration to a varied degree; yet its circumference will be smooth, and its lower, free portion, comparatively rounded, and lightly bearing upon the membrane beneath it.

In marked contrast to this is the cervix which has undergone compression. The cause of such compression is evidently one of three: Either the posterior vaginal wall is too high, the rarest and least active cause, through the rectum being loaded with hardened fæces for a long period; an increase in size of the body or cervix, when the fundus holds its normal position in the pelvis; or a relaxation of the ligamentous supports above, permitting of a *descensus* of the whole organ.

The first of these factors mentioned will be recognized by the finger at once, and by the slight degree of distortion of the cervix. In such a case too, a bimanual examination will show a uterus of normal size, and without undue upward mobility. A uterus that can be raised from one to two inches is slung in ligaments that are more lax than they should be.

If the uterus as a whole is enlarged this fact will be ascertained in the combined examination and the character of the enlargement must be determined by the history and investigation. When slight or no increase is detected, while the cervix shows marked ridges and signs of pressure, with no pathological findings in the upper pelvic vicinity, we may with reasonable certainty diagnose an unduly relaxed condition of the broad and utero-sacral ligaments, and the contiguous connective tissue.

When signs of compression exist, it will be found that no two cervices are alike. If the force has been directly downward in a straight uterus the free end of the cervix will be broadened, flattened out, and at times a hard ridge will be felt extending around its circumference. If a slight laceration exist, this ridge may be exaggerated, reminding one of the ridge on a pig's snout. When a slight degree of anteflexion or retroversion exists, the anterior lip may be squeezed into the shape of a wedge, the small edge pointing in the direction of least resistance, generally down the vagina. In marked retroversion with prolapse, compression may not result, on account of the cervix reaching a position in the vagina under the bladder, the pressure of which is constantly changing, but principally because, when the uterus is in this position any force brought to bear upon the fundus, will tend to lift the cervix from the posterior wall rather than press it against it.

In examining a case which shows marked evidence of compression, it will be noted that the finger meets with more than the ordinary resistance when passing between the cervix and the posterior vaginal wall, and in extreme cases if a speculum is introduced, corroborative evidence will be seen in a reddened patch in the vagina, corresponding to the point pressed upon.

In these cases, a certain amount of œdema will almost always be found. It may be confined to the cervix when it is most readily detected by gently pressing the finger for a half minute against the posterior portion of the cervix between the diverging utero-sacral ligaments. Or it may extend to the fundus where its presence may be determined

by the finger, pressing through the empty bladder or thin abdominal walls by the outer hand on the fundus, fixing the uterus with the hand in the vagina. The œdema is probably not due to flexion or version, if present, but is the natural result of the primal cause *i. e.*, pressure from above, intra-abdominal pressure, bearing upon the pampiniform plexus of veins as well as upon the fundus of the uterus and the adnexa. The cause should now be sought for, and, if possible, removed. The three commonest causes I have found to be, constipation, undue compression of the chest and abdomen from corsets and tight clothing, and constrained position incident to occupation.

After having determined upon the cause, the question arises as to whether a pessary shall be used or not, and my experience has taught me that there being no other contra-indication, a flattened, or otherwise pressure-distorted cervix is a positive indication for its use. This has been demonstrated in many cases, with a promptness in improvement that could not be merely coincidental. On the other hand, even when a uterus is comparatively low in the pelvis, but presents a cervix with rounded outline, a pessary is not called for. This, of course, does not apply to cases of retroversion.

HARRIS A. SLOCUM.

Cancer Involving the Rectum, Colotomy, Re-establishment of the Natural Passage.—A colored woman, about fifty-five years of age, seen with Dr. Bloom, was found in bed with an enormously distended abdomen, through the walls of which could be seen very plainly, the outline of the coils of intestine. She was emaciated to the last degree. Her history was that of complete obstruction of the bowels, which had existed for two weeks. An examination of the vagina and rectum revealed a uterus retro-displaced and adherent. The fundus was embedded in a mass which involved the bowel and which was evidently cancerous. The disease did not merely exist in the rectum as is usual in these cases, but it also included the uterus, the whole body of which seemed to be far advanced in the disease. The patient was too far gone to think of anything

but a temporary effort to save her life, with the idea, if she lived, of performing a radical operation if possible, after she had rallied sufficiently.

She was admitted into the Woman's Ward of the Polyclinic Hospital and in the presence of the class an abdominal colotomy was performed in the median line. After the incision was made, the descending colon, as low down as possible, was brought into the wound and stitched there, after having been opened and emptied partially in the few moments there was to spare for that purpose. The woman was returned to her bed and the bowels were then allowed to slowly empty themselves, which they did completely within the next few hours.

The patient rallied well from the operation and picked up in strength and flesh. The question now arose as to how next to proceed in order best to make a radical cure. To remove the disease it would be necessary to cut down on the sacrum, resect the bowel and then remove the uterus and appendages. The age and delicate condition of the woman all forbade such a serious operation and it was deemed best to attempt to dilate the rectum with rectal bougies. We were the more encouraged in this as the woman began to have slight fæcal passages from the anus. Accordingly ether was a second time administered and after considerable effort the bowel was dilated to quite a respectable size. One week later, the patient took ether for the third time, and again in the presence of the class the artificial anus was closed, without freeing the colon from its adhesions. Union was perfect and three weeks later, the old lady left the hospital to return to her home, with instructions to return twice a week for the purpose of having the rectal bougies passed.

J. M. Baldy.

Early Recognition of Incipient Hip Disease in the Prevention of Deformity.—The symptoms of incipient hip joint disease are variable, in as much as the progress of the ostitis is always insidious. They are, usually, pain at the knee of corresponding side due to irritation at the hip of filaments of the obturator nerve, limping, night cries occur-

ring in the first two or three hours of sleep. History of traumatism apt to be only co-incident. Signs of rigidity of hip, due mostly to muscular contraction in the instinctive effort of the child to obtain immobilization. In abduction and adduction the external genitalia and anterior superior spinous process of ilium of opposite side move freely with affected leg, showing that the entire pelvis moves. Flexion and extension increase the normal arching of lumbar and dorsal spine. Attempting to place the external malleolus of affected side upon the patella of opposite leg develops the absence of rotation of hip. The effacement of the gluteo-femoral crease simply denotes partial flexion and muscular contraction which also accounts for the flattened buttock. Gentle pressure and manipulation do not increase pain, but blows upon the sole of the foot or upon the flexed knee cause inflamed surfaces in acetabulum to come into forced contact and severe pain is produced, indicating that such rough and brutal procedure is capable of doing severe damage, and being unnecessary, is unwarranted.

It is important to bear in mind that the tendency of hip disease is to increased destruction of bone and therefore, the arrest of its development and progress is to be sought at the earliest possible moment.

It is better to aim at obtaining ankylosis, for in so doing there will be a freedom from the traumatism of motion, and a rigid joint and a short leg may often thereby be avoided by causing a cessation of the inflammatory action.

It is important to remember that the symptoms and signs of the incipient period of hip disease may often be accounted for by caries of lumbar and dorsal vertebræ, by a sprain of the hip, by reflex irritation produced by an adherent prepuce in either sex, but never by so-called growing pains.

The early differentiation is essential for the successful termination of the case, and will always depend upon assiduous attention to details. It is always a safe and prudent procedure to treat a case as the most serious that the symptoms indicate, and by so doing in hip disease the progress may be arrested. A hasty examination and too favorable prognosis permits the disease to continue in its

active progress, forming abscesses and sinuses so that no one can help making a diagnosis. The time for preventing deformity having passed, attention must be directed to its correction and this is the time for regret that early recognition had not taken place.

H. Augustus Wilson.

The Treatment of Apoplexy by Position—the "Bowles Treatment."--Sometimes treatment of the greatest simplicity is overlooked while laboriously but vainly trying to help a patient; and this remark is particularly applicable to one of the most useful of all measures for the relief, and it may be the salvation of a patient in a severe apoplectic attack. Stertor is one of the danger-threatening phenomena of apoplexy, and it is usually regarded as connected in some more or less mysterious way with hæmorrhage into the brain, and conditions of arterial tension. Robert Bowles in his recent work *On Stertor, Apoplexy and the Management of the Apoplectic State,* has made some valuable practical suggestions with reference to the nature of stertor and its relief. He criticizes the view of Strumpell, Nothnagel, and the authors in general who agree with them as to the value of venesection, enemata, and purgatives for apoplexy. He believes that after all, it is the suffocation symptoms which are relieved by bleeding, and suggests what is certainly a much simpler if equally effective means of giving relief, namely, turning the patient on his side. The practical value and easy application of his views are at once evident. On several occasions I have tested their value, although I am inclined to believe that he is too sweeping in his claims for the efficacy of his plan in all cases.

The term stertor is descriptive of the sounds in the throat, mouth, or any part of the air passages, produced by the movements of the air during respiration, and occurring in apoplectic and like conditions. Bowles distinguishes between several varieties of stertor, as the nasal, the buccal, palatine, pharyngeal, laryngeal, and mucus. He holds that the stertor of the apoplectic state may be equal in

danger to the crowing of the croupy child, or the stridor arising from the pressure of a thoracic tumor.

The accident which determines whether the "stroke be or be not accompanied by stertor," he says, "is in most cases due to the patient's happening or not happening to be on his back; or should he exhibit stertor while on his side, there must be some derangement of the ordinary relations of the pharnyx, such as the chin being too near the sternum, the existence of a local œdema, long uvula, large tonsils, mucus in the air tubes, pressure from without, or indeed anything which narrows the respiratory channels, or vibrates in their course." His most important conclusions are, that the three forms of stertor which have the most connection with the apoplectic state, are the palatine, pharyngeal, and mucus; that these three varieties whatever their remote cause, are the immediate result of a local mechanical condition—a condition which may always and at once be changed to the great relief of the patient, and sometimes to his permanent recovery by placing and keeping him on the paralyzed side.

CHAS. K. MILLS.

Discoloration of the Iris in Iritis.—This discoloration is due to hyperemia, and corresponds to the classic symptom of inflammation, redness, seen in other parts of the body. It may be imitated by mixing with a pigment representing the color of the normal iris a certain amount of scarlet or orange. The effect so produced depends mainly on the original color. If this be light blue or gray, a very small addition of red causes a marked dulling and alteration of the hue. But if the iris be a dull, dark brown to start with, even a high grade of hyperemia will cause no notable alteration in it.

EDWARD JACKSON.

Favorite Formulas.

Every physician falls gradually into certain ruts in the prescribing of remedies. A set of definite formulæ, modified at times according to the exigencies of the case become with him stock preparations. This practice is to be deprecated on some accounts, among them that it prevents the careful study of each individual case from a therapeutic standpoint. On the other hand it is almost a necessity in an active practice, and possesses as well some good features. By the frequent administration of certain definite combinations of drugs one learns to know by actual experience what they can be expected to accomplish. Two conditions, however, ought always to attend such routine practice; the one that the physician understands somewhat of the "reason why" of his favorite prescription; the other that he have other strings to his bow in case of failure.

For Dyspepsia.—In the treatment of a very large number of cases of dyspepsia during a series of years I find myself constantly giving some such formula as the following,—a prescription whose general construction is by no means original with me:

Tinc. nucis vomicæ	m. v.—xv.
Ol. caryophylli	m. j.—iv.
Spir. chloroformi	m. xv.—xxx.
Tinc. cardamomi comp. ad. . .	f℥ j.

M. S. A teaspoonful in water after meals.

The results have been excellent in a certain class of cases, and it may not be useless to analyze the "reason why" of the success of this formula,—the method of action of the different ingredients.

All recent studies upon gastric disease prove that to obtain accurate scientific knowledge of cases of dyspepsia it is absolutely necessary to administer an ordinary mixed meal, and then, after some hours, remove the contents of the stomach and analyze these by methods simple and practical enough for any physician to carry out. In this way we can determine just what the cause and nature of

the disturbed gastric function is in any given case. But unfortunately patients sometimes cannot be convinced of the importance of the operation; certainly not upon the first visit, and we are in the meantime compelled to institute such treatment as we think most likely to relieve or cure.

Suppose then we analyze the formula mentioned.

Undoubtedly the principal *curative* ingredient is the *nux vomica.* Most cases of dyspepsia depend largely upon functional disturbances. The glands are still of perfect structure. They are simply *not working well.* Actual extensive atrophy of the gastric glands is certainly of rare occurrence. In proof of the functional nature of most dyspepsia, is the common experience of finding symptoms of severe dyspepsia disappear when the patient is put upon simple tonic treatment or is sent from home for rest and change. I have one patient particularly in mind who can, as a rule, eat the most indigestible food with impunity. As soon, however, as he undergoes any worry or over-work, severe flatulent dyspepsia develops which is frequently uninfluenced by any medication whatever. From this point of view most cases of indigestion are instances of nervous dyspepsia. Nux vomica not only is a general tonic to the nervous system, but at the same time, of course, influences functionally the nerves of the stomach. It is in this way, I believe, that it does good; by bringing the functional activity of the gastric glands and of the gastric muscular wall into a normal condition. For we must remember that in the proper digestion of food the motor power of the stomach is equally important with its secreting action.

The dose of the tincture of nux vomica may be larger than is ordinarily given. Five minims of the tincture equals but 1--200th of a grain of strychnine. The amount mentioned in the formula is sufficient in many cases, but should good results not soon follow, it may be increased very much.

Most cases of dyspepsia complain of eructation of gas or of bloating, coming on soon after eating. Many patients are sure that they would feel relieved could they only free themselves from this great gaseous accumulation. This

condition is usually due to an abnormal fermentative change taking place in the stomach. The rationale is simply that the starch ingested undergoes an unnatural decomposition, probably due to a too early secretion of hydrochloric acid, which prevents the continued action upon the amylaceous matter of the saliva swallowed with the food. The result is an "acid" stomach from organic acids and a large production of gas. The unusual acidity, both from the over secretion of hydrochloric acid and the excessive amount of lactic acid, can be neutralized by bicarbonate of soda taken after eating. I have, however, always had doubts whether the continuous ingestion of an alkali was entirely devoid of harm, and have therefore sought to relieve the distress in other ways.

The administration of one of the aromatic oils is one of the best means of accomplishing this end. These oils are antiseptic and prevent decomposition to a certain extent. Their principal action, however, is that of a stimulant to the muscular coat of the stomach and intestine, causing the expulsion of the accumulated gas. I usually select *oil of cloves*, both on account of its pleasant taste and its decided carminative power. When cloves fail I am very partial to cajeput, though its taste is unpleasant. Creasote may be substituted in some cases, but its action is probably not entirely similar, and its taste, particularly that communicated to the eructations, is exceedingly disagreeable to many individuals.

Oil of cloves, by expelling the flatus, relieves the colicky pain which so usually attends this form of dyspepsia. Yet, sometimes the pain is very severe, and is not relieved by aromatics. In such cases *chloroform* will often act most efficiently. I call to mind one case in which nux vomica, acids, alkalies, aromatics had all failed, while relief to a very severe colicky dyspepsia was at once obtained by giving chloroform. The good results produced by it are due partly to its carminative action, but chiefly, I think, to its power as a local anodyne. The dose of the spirits of chloroform, as given above, though a small one, is usually sufficient. It may be increased in amount, or *chloroform*

purificatum substituted for the *spiritus*. Finally the *compound tincture of cardamum* is added because it is itself a gentle carminative, contains enough alcohol to aid in dissolving the oil, and forms an elegant vehicle.

It may seem strange at first thought that no acid is recommended in the prescription under discussion. As has already been intimated, indigestion is by no means, due as a rule, to a lack of hydrochloric acid in the gastric secretion. The employment of the stomach tube has shown that the great majority of patients with dyspepsia possess too much hydrochloric acid rather than too little of it. To give the acid, then, to a man suffering from flatulent dyspepsia, the result of abnormal decomposition of starch, is but adding fuel to the fire. The indiscriminate administration of acid is the worst possible therapy. Yet as our treatment of dyspepsia is necessarily empirical to a large extent, unless the secretions may be analyzed, it is well, if some such formula as that suggested does not avail, to try an alkaline or an acid treatment. Certain dyspeptic conditions are very amenable to one or the other of these. It is needless to add that no case of dyspepsia can be successfully handled without a careful regulation of diet. Further, that the whole organism should be subjected to a scrupulous examination in order to determine the ultimate cause of the gastric condition, since nephritis, hepatic cirrhosis, cardiac disease, phthisis, febrile conditions, etc., are liable to be accompanied by dyspepsia.

J. P. Crozer Griffith.

Book Notices.

THE PATHOLOGY AND TREATMENT OF GLAUCOMA.—By Priestly Smith, Ophthalmic Surgeon and Clinical Lecturer on Diseases of the Eye, Queen's Hospital, Birmingham. 8 vo., pp. 198, illustrated. London, J. & A. Churchill.

This monograph is the best presentation extant of the mechanical theory of glaucoma, the only consistent theory now before the profession. And it is so clearly written and so well illustrated, that the student quite unfamiliar with the subject, will have no difficulty in understanding it.

E. J.

THE

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INFANT FEEDING, NATURAL AND ARTIFICIAL.

By Edward P. Davis, A. M., M. D.,

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By the term "infant feeding" is commonly understood the nourishment of infants by material other than the mother's milk, and it is commonly thought that the nursing mother requires few precautions to enable her to satisfactorily care for her offspring. Infant feeding, however, should embrace the treatment of mother and child during lactation, and this care must be given from the time when the pregnant woman puts herself under the care of her physician. The prophylactic treatment of the mammary glands during pregnancy is of especial importance; as early as the seventh or eighth month the nipples should be examined to see that they are sufficiently well formed to enable the child to grasp them: they should also be inspected for any lesions which during nursing would give rise to cracks or fissures. The usual toilet of the patient should include thorough washing of the breasts and nipples twice daily with warm water and castile soap, followed by the use of a simple ointment such as cocoa butter, cosmoline, vaseline, cold cream, or vaseline containing ten grains of powdered boric acid to the ounce. The nipple should be grasped by the thumb and finger and gently elongated while the ointment is applied. The use of agents to harden the nipple is unphysiological, and will only favor the occurrence of fissures.

Immediately after the birth of the child the question will arise how soon may it be put to the breast? This will depend upon several circumstances; if the labor has been especially exhausting and dangerous, the nurse should wait until the mother has reacted from the shock of the confinement; if the labor has been easy and brief, so soon as the mother feels rested she may attempt to nurse the child. For the first twelve hours after birth the infant will obtain little from the breasts, but the effort to nurse will stimulate the secretion of milk, and by its laxative properties the fluid obtained, is of use to the infant. If the simple precaution be taken to thoroughly cleanse the nipple with a saturated solution of boracic acid, to a small cup of which a teaspoonful of glycerin has been added, much will be done to obviate the danger of sore mouth in the infant and sore nipples in the mother. During the interval which elapses between birth and the establishment of a full secretion of milk, the minds of the attendants are naturally anxious lest the child suffer from lack of nourishment; such fear, however, is often groundless; the child comes into the world with considerable superfluence of nutrient material on which it can well subsist for from twenty-four to forty-eight hours.

Its greatest need is for water, and a teaspoonful of good water at a palatable temperature may be given the child as often as desired. During the first twenty-four hours it will usually have a number of bowel movements in which it will get rid of the meconium which has been in the intestine during intra-uterine life. The free use of water will assist in thus emptying the intestine, and also in favoring the free secretion of urine. If the child has intestinal colic, hot water with a few drops of peppermint, and hot flannel placed upon the abdomen will usually cause the trouble to cease. It is quite enough to put the child to the breast but two or three times during the first twelve or twenty-four hours of its existence. If the child is premature and ill-developed, it may be fed with small quantities of peptonized milk, and if collapse threatens, whiskey and water, may be given.

When lactation is established, the child should nurse at regular intervals and its feeding be so planned that between ten in the evening and six in the morning the mother is wakened but once to nurse it. The importance of regularity and discipline in the mother cannot be over-estimated, and the observance of proper precautions, or their neglect, will make the difference between a healthy and reasonably contented mother and child and an ill-nourished, fretful child and fatigued and irritable mother. It is upon such apparently small points as regularity in nursing and giving the infant nothing except by the doctor's order, that the physician will do well to insist. In spite of his best endeavors, he will often be thwarted by the superior knowledge and experience of some woman older than the mother.

The hygiene of the nursing mother is of the greatest importance. Abundant rest and fresh air, an easily digested, thoroughly nourishing diet, with abstinence from stimulants and narcotics, will give the best results for both mother and child. As a general maxim, it may be said that whatever agrees perfectly with the mother's digestion will further the secretion of good milk; hence it is often observed that the individual appetite is a better guide for the nursing mother than any set rules. She will remember that some of the plants and vegetables contain laxative substances, as rhubarb, and that often, after eating such substances, the milk will have a laxative influence upon the child. An attack of acute indigestion on the part of the mother and especially a profound disturbance of the nervous system occasioned by anger, fright or fear, will render the milk temporarily very injurious.

She should drink plenty of pure water; and, in addition, milk, cocoa and freshly made English breakfast tea of moderate strength are the best beverages. The theory prevalent among women that coffee checks the secretion of milk is scarcely supported by facts. The nursing mother should take pains to avoid constipation, and the action of the skin should be maintained by regular bathing. When the strain of nursing seems too much for the mother, her

regular diet may be supplemented by an extract of malt, small quantities of peptonized milk or broth taken between meals, and during cold weather, by the addition to her diet, of cod-liver oil. The use of alcoholic liquors with nursing women is to be condemned, as the habit of alcoholism is too readily formed to render the practice a safe one.

When the patient has proceeded several months in nursing her infant, circumstances may arise which will oblige the mother to begin artificial feeding; some patients seem in the best of health while nursing their children, and others, apparently quite as strong, show failure in health, with diminution in the supply of milk a few months after the birth of the child. There can be no question of the desirability of nursing for mother and child, but when the supply begins to fail and the health of both to suffer, then the maternal supply should be supplemented by another food. Among the many curious superstitions in the minds of women regarding nursing, is one to the effect that when a nursing mother begins to menstruate again, the quality of the milk is thereby improved: on the contrary, the re-establishment of menstruation is often accompanied by deterioration in the quality of milk and lessening of the quantity.

When it has been decided to begin artificial feeding, the effort should be to commence gradually; at first with one meal, then two, and when these are well borne, with several during the day. It is often best to reserve the mother's supply for the night, so that the child shall nurse once during the night. In commencing, it is of importance that the quantity given be not too great, and the food be sufficiently diluted to be readily digested. The kind of food to be selected will depend upon the patient's circumstances; if she can obtain milk of good quality from a thoroughly sound cow, that is the best material; if she is about to take a long journey or cannot obtain the milk of a healthy animal, then condensed milk may serve a useful purpose. If the artificial feeding commences in the summer and the patient cannot obtain ice and the proper appliances for caring for milk, condensed milk is often of great value.

Milk should not be given to a child without sterilization. This process has been before the American profession for several years, and has caused the invention of various sterilizers, all of which depend upon the same principle for their utility and none of which is absolutely necessary for the purpose of sterilization. There are two theories of sterilization at the present day. One, was originated by Pasteur who found that milk in its ordinary condition contains an abundance of bacteria of various kinds. These germs are derived from the animal furnishing the milk, from the surroundings in which the animal is kept, the hands of those who milk the cow, the utensils in which the milk is received, and the air of the stable. Many of these bacteria are harmless in the infant's stomach; others are capable of causing lactic acid fermentation, indigestion, and ultimately gastro-enteritis. Pasteur found that by heating milk to the temperature of 155 F. for six minutes and then cooling it rapidly, noxious bacteria were destroyed and the milk rendered safe for use. Milk so prepared is not unpalatable, and is without the peculiar cheesy taste of milk which has been boiled for some time.

The other theory of sterilization is that which has been popularized by Sohxlet of Munich who recommends that milk be steamed at a high temperature for from twenty minutes to half an hour; to accomplish this, milk is put in sterilized bottles corked with sterile cotton, and placed, resting upon a false bottom, in a closed box. Beneath the false bottom of the box are several inches of water; this water is allowed to boil continuously until the entire box is filled with steam; a cover is then put upon the box and the milk steamed under continuous boiling for half an hour.

The objections to this method of sterilization have been ably stated by Professor Leeds whose researches in milk have done so much to place our knowledge upon a sound basis. He has shown (*American Journal of the Medical Sciences*, June, 1891) that milk in its normal condition contains a substance which acts as a ferment in digesting

starch; the sterilization of milk by long continued steaming destroys this ferment, accumulates the fat of the milk in lumps resembling ill-conditioned butter, and renders the casein of the milk much less digestible than is ordinarily the case. Sterilization at a low temperature as practised by Pasteur is free from these objections, and results in leaving the milk in a digestible condition.

It is quite unnecessary in sterilizing milk at a low temperature to employ a special apparatus. The best quality of nursing bottles should be used, as they must be cleaned by boiling, and bottles poorly made will break in large numbers. The nursing bottle should have rounded surfaces, thus favoring its rapid cleansing, and preventing the accumulation of dirt.

Among the many formulas which have been suggested, the following are given as having proved of practical value; first, a formula suggested by Professor Leeds which is adapted especially to the preparation of peptonized milk with the materials furnished by Fairchild Brothers and Foster. It consists of

Water, 4 tablespoonfuls,
Milk, 4 tablespoonfuls,
Cream, 1 tablespoonful,

with a suitable amount of peptonizing powder. If it is not necessary to peptonize milk, the same relative proportions may be employed in preparing an infant's bottle.

Another formula which has given good results in my hands consists in a mixture to make eight ounces as follows:

Milk, 2 ounces,
Cream, 3 ounces,
Lime water, $\frac{1}{2}$ an ounce,
Sugar of milk, 1 teaspoonful,
Water to make 8 ounces.

Either of these formulas calls for no materials not obtainable in ordinary cases, and is simple enough to render their preparation by a person of average intelligence comparatively easy. If the infant has a tendency to constipation, the water in the last mixture may be replaced by oatmeal-

water which is made by pouring upon half a cupful of oatmeal a quart of boiling water, boiling until the oatmeal is tender, and then straining through a sieve. If, on the other hand, the child suffers from frequent liquid stools, barley-water may be employed to advantage in preparing its food. Barley-water has another useful function, namely, that of preventing the curding of the milk in large and tenacious curds.

The question naturally arises whether the formula employed in the preparation of milk should be followed as the child grows older. As a rule, we must assume that the quality of mother's milk remains practically the same throughout the period of nursing, and hence it would seem that no variation is needed in the constitution of a mixture prepared to resemble as closely as possible mother's milk. On the other hand, during the first few days of life the secretion of the mammary gland is much less rich in fat and casein than is perfectly formed milk, and hence when artificial feeding must begin from birth it is well to use a very dilute mixture in the beginning. The strength can then be increased until the formula resembles the constitution of fully formed milk.

The successful practice of infant feeding is only possible when habits of regularity and strict cleanliness prevail; there can be but one excuse for delaying a child's meal beyond the proper hour, and that is the question of sleep; if a child is slumbering quietly after a period of unrest, its slumber may be prolonged for an hour or two beyond the time when otherwise it should have been fed. Again, as a child grows older, its appetite will demand a larger quantity, and common sense would dictate that the intervals between its meals should be gradually lengthened; but ordinarily the child's life should be so ordered that its meals occur with regularity. So far as the amount of each meal is concerned, children are more frequently given too much than too little; three ounces may be used in beginning infant feeding, given every three hours during the day. If this amount is well digested, it may be gradually increased until between four

and six months a child may take from six to eight ounces every four or five hours.

The care of nursing bottles is of equal importance with the constitution of the food and its preparation; bottles cannot be cleaned thoroughly by soap and hot water alone; they should be boiled in a solution of washing soda, carefully rinsed, and when not in use should contain a saturated solution of boracic acid. The best nipples for this purpose are those of simple black rubber, and they also should be rinsed in soda solution and kept in boracic acid solution when not in use. The cotton with which the bottles are to be corked should be baked in the oven before using, and the neck of the bottle should be protected from dampness by the use of a small glass funnel through which the mixture to be sterilized is poured into the bottle. If the funnel is not employed, the neck of the bottle will be wet, and the cotton will stick to the bottle, and bits of it may get into the mixture which is sterilized.

Where a child is fed entirely on sterilized milk, the food may be prepared twice daily, and after preparation it may be put upon ice and kept until required. To prepare milk for use, there are necessary, a tin basin, a source of heat, nursing bottles, cotton, a glass funnel, and some standard of measurement, either the tablespoon or an ounce measure. The bottles having been cleaned, the mixture is introduced into the bottle, as has been described, through the funnel; the sugar of milk may be added to the water before it is put in the nursing bottle and dissolved. When the requisite amount has been mixed, the bottles are corked with baked cotton and placed in the basin in the bottom of which are several inches of water. The basin is then placed upon the fire and the water in the basin allowed to come slowly to the boiling point. When it simmers, the time should be noted, and the bottles allowed to remain in the boiling water not longer than ten minutes. They should then be taken immediately from the fire and allowed to cool rapidly.

In the great majority of cases this simple manner of pre-

paring milk is sufficient to make the question of artificial feeding free from especial difficulty. Cases arise, however, in which it seems almost impossible to find a substance which the child will digest. The maxim should then be remembered that whatever feeds a child or an adult is food for that individual, and hence a careful trial should be given of milk prepared as described; then of condensed milk, then of milk to which is added either Mellin's or Horlick's Food; then of peptonized milk prepared with the peptogenic powder of Fairchild Brothers and Foster, and finally, if goat's milk can be obtained, that will sometimes succeed when all else has failed. As supplementary articles of diet, carefully skimmed mutton broth, chicken broth, beef peptonoids, white of egg and barley water, arrow root or grated flour-ball mixed with milk may be employed. Cod liver oil is of great value and olive oil is sometimes efficacious in promoting nutrition and lessening obstinate constipation.

When acute indigestion occurs, milk should immediately be stopped, the intestinal canal should be thoroughly emptied by castor oil or by small doses of calomel, followed by castor oil, and the child's strength must be maintained by brandy and water or whiskey and water. White of egg and barley water, mutton or chicken broth are of use in maintaining nutrition until the offending material can be removed from the digestive tract, and the patient is ready to begin a normal digestion again. There can be no doubt of the utility of washing out the stomach of an infant suffering from acute indigestion. In hospital practice this procedure is quite possible in most cases; in private practice it is doubtful if the physician would be allowed to employ this method of treatment. Should vomiting occur, however, it should not be checked so long as curded milk is ejected.

Infant feeding in disease requires the closest attention and careful study of each individual case. In chronic disorders of the digestive tract, peptonized milk is of especial advantage. The value of the fats and oils in tubercular and other wasting diseases is well known, and the power which infants possess of assimilating relatively large quantities of

alcohol is also to be borne in mind. It must be remembered that starch should be avoided in infant feeding until the child is four or six months of age, if possible; also that cane sugar is more likely to cause fermentation in the intestinal tract, and acute intestinal dyspepsia, than is milk sugar, and hence, the latter is preferred for sweetening children's food.

The occurrence of acid vomiting with curded milk may be taken to indicate that the child is suffering from an acid fermentation. This may be the lactic fermentation caused by bacteria in milk not properly sterilized, or it may be due to the presence of fatty acids resulting from an excess of fat in the food, coupled with the presence of gastric catarrh. In either instance, the diet should be carefully revised, the percentage of fat in the food diminished if necessary, and especial precautions be taken that the milk is properly sterilized. With our present knowledge upon the subject, it is safe to say that many children may be reared more successfully by artificial feeding than if they were to nurse; it is comparatively rare to find a woman who posseses all the physical qualities of a successful nurse, and hence, science is called upon to supplement the deficiencies of nature. It is also true that the artificially fed child is often quite as comfortable and as little an object of disturbance as the child naturally fed. Regularity, cleanliness and common sense are the characteristics of good infant feeding, and no amount of changes in diet employed or of theoretical considerations in the doctor's directions will compensate for a lack of any of these essentials.

THE TREATMENT OF FRACTURE OF THE PATELLA.

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The treatment of fracture of the patella is a subject which has caused a great deal of discussion within recent

years. Since the introduction of antisepsis in surgery, more radical means have been resorted to. The posterior splint, adhesive strips, and figure of eight bandage is a method used by most surgeons at the present date. This has been followed by very good results in the majority of cases; at the same time, failures have occurred, the causes being inability to retain the fragments in position, fringes of tissue and organized clots interfering between the fragments, and muscular action. In the majority of cases fibrous union is the best result that can be obtained, and by some authorities it is thought that this is the best result possible, as it is less likely to be followed by refracture. Yet in many cases there is yielding of the fibrous tissue as time elapses, with separation of the fragments and impairment of locomotion.

The use of Malgaigne's hooks in connection with the posterior splint is a popular treatment which fulfils two important indications, namely, approximation and retention of the fragments in position. In the early use of these hooks, inflammation of the joint frequently followed, and in some cases, anklyosis, no doubt due to the introductien of septic material, for it has been found that under strict antiseptic precautions these complications do not occur. A modification of the old manner of using the hooks has been suggested by Treves, and is thus described in his Manual of Surgery.

The knee being extended, a vertical incision is made along the front of the joint, over the center of the patellar fragments. This median cut may commence one inch above the upper fragment and end one inch below the lower. The integuments having been separated by retractors, the fragments are exposed and their fractured surfaces are cleared of the fibrous tissue and the thickened synovial membrane which will cover them. These surfaces, when freed, are then freshened by removing a thin slice of the bone with a fine, narrow chisel. In effecting this, each fragment should be steadied by means of lion forceps, the blades of which are without teeth. A small piece of sponge should be pressed beneath the fragment to prevent blood

from running down into the knee joint. The lower fragment, which is usually the smaller, is the less easy to deal with of the two. The points of the hooks are inserted on each side of the median line, are driven through the uninjured skin, and are forced well into the bone near its attached margin (upper or lower border, according to the fragment dealt with). As the modified instrument is in two separate parts, the hooks are at first fixed into the fragments independently, and the whole apparatus is made one, when the two hook carrying plates are brought together. The plates are now screwed together, and if the bones cannot be brought close to one another they may be approximated as nearly as possible, and the screw tightened daily until they are in close contact. In exceptional cases it may be necessary to divide some fibres of the rectus muscle. In most instances no drain is required. The limb is secured to a straight posterior splint and placed upon an inclined plane, the wound is entirely closed by sutures, and these and the apertures formed by the hooks are buried in iodoform.

These are the conclusions which he draws in favor of this method. The operation is easy and simple, and the apparatus is well exposed to view. The fragments are held together by hooks which are placed laterally to the median line, and effect a more perfect and more certain approximation of the bones than does a single median wire. If the bones are not to be brought together at once, they can be approximated by a more gradual process, namely, by tightening the screw every day, for the first few days. The points of metal penetrate only the surface layers of the bone, and do not, like the wire, involve a seaton-like passage through the cancellous tissue. The removal of the hooks is very easy. (The removal of the wire is often difficult.) After the first few hours of the first day the hooks cause no pain.

The points aimed at in wiring are, first, to free the interval between the fragments of bone of the fringes of the torn capsule and synovial membrane. Secondly, to clear the joint of blood clot, and, thirdly, to obtain absolute apposition of the fragments.

The first step in the operation is performed by making either a transverse or longitudinal incision over the center of the joint, the limb placed in an extended position, and the torn fragments of the capsule and synovial membrane dangling between the fragments cut away with scissors. The second step consists in washing out the joint with warm one to four thousand solution of bichloride. The third step is that of drilling either fragment at two points equally distant from the median line of the patella, and on the same plane, and of the introduction of silver wire, sufficiently strong to retain the fragments. The drilling of the fragments should be done from above downward in the case of the upper, and from below upwards in the case of the lower fragment; the drill being carried through either fragment obliquely, and emerging short of the junction of the cartilage with the bone; by observing this precaution the drilled holes are confined entirely to the bony structure. The ends of the wires when twisted are cut short and beaten down on the upper surface of the larger of the two fragments.

In several cases I have operated upon, the wires have not caused any disturbance. Short drainage tubes are now introduced into the lower angles of the wound in the event of its being a transverse one, or if longitudinal, through counter openings made upon either side of the joint. The capsular ligament and the overlying soft parts are approximated with either the continuous or interrupted silk or catgut sutures, preferably silk, as it is more readily rendered aseptic. The wound is dusted with iodoform and dressed with moist iodoform gauze, after which the limb is enveloped in a plaster dressing.

The objection to wiring fractures of the patella when union has failed to take place, where refracture has occurred, or when the union which has been fibrous has lengthened to such an extent as to seriously impair the usefulness of the limb, are certainly not as strong as against the wiring of recent fractures.

The objections urged against wiring in recent fractures are,

first, subjecting the patient to the risk of septic inflammation of the joint, consequent upon opening it which in some instances has resulted in ankylosis, in amputation of the thigh, and in death. Caries of the patella, which has also followed the use of the wire. In the hands of a careful aseptic surgeon, one who is very particular in carrying out the most minute details of antisepsis, none of the above results, exclusive of caries of the bone, should occur.

The contra-indications to wiring are advanced age, the presence of kidney lesion, diabetes, markedly impaired general health, addiction of the patient to alcoholism, when delirium tremens would be likely to follow the most trivial operative procedure. Further, wiring is contra-indicated when the soft parts have sustained severe injury, making sloughing liable as well as when the fracture is of the stellate variety, whether simple or compound. In certain compound fractures of the patella the treatment does not differ from that of similar fractures of other bones.

In recent fracture of the patella, where the line of fracture is so irregular that it prevents close approximation, a removal of a section of bone will be necessary. In ununited fractures, in fracture occurring at the site of a previous fracture, and in those cases where the union has been fibrous a section of bone should be removed. Dressing with plaster of Paris where the fragments have been wired I regard as an essential part of the treatment, believing that by its use the field of operation is much better protected.

As illustrating both methods of treatment, I report the following case: B. M., aged 21; American; occupation, mechanic; with no history of specific disease, was admitted to the German Hospital, suffering from a fracture of the patella, the result of muscular strain. The fragments were separated to the extent of one and one-quarter inches with marked swelling of the joint due to effusion, composed doubtless of a large amount of blood. Owing to the swelling of the joint the limb was enveloped in a pillow and a lotion of lead-water and laudanum applied. At the end of a week, the swelling having largely subsided, the limb was

prepared antiseptically, the fragments of bone brought together with Malgaigne's hooks, which had been previously made thoroughly aseptic. The field of operation was dusted with iodoform and dressed with iodoform gauze, a posterior splint was adjusted and the limb placed in a fracture box. The dressing was not removed for two weeks, when the hooks were removed, the site of the punctures dressed with iodoform gauze, and the limb from mid-foreleg to mid-thigh encased in a plaster of Paris dressing. The patient was now allowed to get out of bed and go round the ward on crutches. At the end of two more weeks he was permitted to go out, with instructions to return at stated periods, Recovery was uneventful.

February 22nd, 1892, he was again admitted with a fracture of the same patella. Examination showed the second fracture to be transverse and immediately above the origin of the tendo patellæ, making a so-called sprained fracture. The interval between the fragments measured two finger breadths. There was little effusion in the joint. I now advised wiring of the fragments. The limb having been thoroughly cleansed and the patient anæsthetized an incision was carried transversely over the line of separation of the fragments into the joint, when considerable blood clot was removed, the fringes of the torn capsule occupying the interval between the fragments cut away with the scissors, the fragments drilled at two points and brought into apposition with silver wire sutures.

Pieces of drainage tube were introduced in the joint upon either side. The capsular ligament and soft parts were united with interrupted aseptic silk sutures, when the limb was dressed with iodoform gauze and fixed in a plaster of Paris dressing, including as much of the limb as did the original plaster dressing.

This dressing was not entirely removed until the patient left the Hospital, five weeks later. Openings were made, however, in the plaster upon either side corresponding to the position of the drainage tubes. At the end of the first week after the operation, there being no discharge the tubes were removed.

February 28th, the day following the operation, the temperature was 99⅘° F.; patient complained of some little pain. February 29th, morning temperatnre 99°; evening temperature 99⅘°; less pain; patient had a very comfortable night. From this date on to the time of his dismissal convalescence was uninterrupted.

At the time of wiring, the site of the original fracture was examined, when as best could be determined the union consequent upon the use of the hooks was decided to be bony.

COMPLICATIONS OF GONORRHŒA.[1]

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Gentlemen :—The several cases which present themselves for treatment are very good illustrations of what I have so frequently had occasion to point out to you in my remarks upon gonorrhœa, viz., that it is an affection which seldom progresses to recovery without some complication, and, therefore, it is never well to offer too favorable a prognosis.

The first patient is suffering with an attack of acute gonorrhœa. He gives a history of exposure ten days ago, which was followed, five days later, with some pain in passing water, and the same day he noticed a discharge at the meatus. At the present time there are present all the subjective and objective symptoms of an attack of gonorrhœa. In addition he complains of painful erections of the penis, which trouble him at night; indeed, this symptom is the one which now gives him the most distress, and the one for which he seeks relief.

This complication, *chordee*, is a very frequent one, in fact, the one most often complained of, and further, it is a complication which is due to the gonorrhœa alone, it, the gonorrhœa, being both the exciting and the predisposing cause; other complications, while they are caused by the gonorrhœa, frequently depend upon some other exciting cause.

[1] Clinical Lecture delivered at the Philadelphia Polyclinic Hospital.

Chordee consists in a painful erection of the penis, at the same time it is an erection in which the organ is imperfectly erected, and is curved in a downward direction, forming a bow. These painful erections may occur at any time during the twenty-four hours, but it is at night that they give the most trouble, and no doubt a reason for this is that the distention of the bladder with urine acts as an excitant in causing the erection, just as it does when there is present no gonorrhœa.

Some writers account for this downward curving of the penis, in an attack of chordee, by the products of inflammation having occluded the blood spaces in the corpus spongiosum, and thus preventing the proper erection of the organ. Others, and I am in accord with these, believe it is not owing to the above described cause, but think it is a spasmodic state of the muscles which surround the urethra, and that it arises from the inflamed condition of the mucous membrane overlying them. This I think can be sustained by the fact that wherever there is muscular tissue covered with mucous membrane, and the mucous membrane is inflamed, there is a painful contraction of the muscular layer, for example, the intestines, when there is an inflammation of their lining mucous membrane, it is accompanied with painful colic, due to the spasm of the muscular layer. Again, it is evidence that it is a spasmodic condition of the muscles, which are covered by the inflamed mucous membrane of the urethra, that gives rise to the chordee, from the fact that the remedies which relieve it are those which allay spasm. The antispasmodics succeed best in relieving attacks of chordee, or by some application to the mucous membrane of the urethra which is known to have the property of lessening the sensibility of the part, an attack may be prevented. A third reason is given for the chordee, and is known as the nervous theory, this explains it as follows: there is a spasm of the muscles which control the blood supply to the penis, the spasm being due to the irritation of the branches of the pubic nerve, which are also distributed

to the inflamed mucous membrane of the urethra. When the erections occur during sleep they are attributed to the excitor-motor action roused in the spinal cord when it is deprived of the control of the brain. If, as sometimes occurs, there is a greater distention of the penis on one side than on the other, it is said to be due to the irritation on the corresponding side being greatest.

Believing chordee to be an affection in which there is a spasmodic condition of the muscles, the indications for treatment are for that which will allay or prevent the spasm. The treatment may be local, general, or both. The local is to apply some anæsthetic to the inflamed urethra, which, while it allays the sensibility, will not at the same time occasion any irritation of the mucous membrane; we have in cocaine muriate a drug which possesses this property, and, therefore, an injection of a four per cent solution into the urethra, just before going to bed, is usually efficient in preventing an attack during the night. For the general treatment of chordee, mild cases, you will find, may be relieved by a full dose, thirty to forty grains, of potassium bromide at bed time. A dose of morphia sulphate, or the combination of opium and camphor, to which may be added belladonna or lupuline, is an old and often efficient remedy in chordee. The opium combination may be administered in the form of a suppository.

During the attack, when the painful erection is present, it is best relieved by the application of cold cloths to the penis, and as soon as possible the bladder should be emptied of its urine. The patient should be cautioned never to use any force to the penis, "to break the chordee." Such violence may cause a rupture of some of the blood vessels with hæmorrhage, and also inflammation of the tissues. This accident of hæmorrhage and inflammation is a very unfortunate occurrence, and may result in a permanent injury to the organ. Thus the cavernous structure of the erectile tissue of the penis may be obliterated, and it then becomes impossible for the blood to enter it so as to fill its meshes, as a consequence when there is an erection of the penis it is

one in which the organ is bent to one side, this bending may be to such an extent that it will hinder, if not prevent the patient from performing the act of copulation. And what is yet more unfortunate is that it is a condition for which there is but little to be expected from any surgical operation done with a view to remedy the deformity. The operation of removing a wedge-shaped piece from the opposite side of the penis, has been recommended and performed, with the hope of restoring the usefulness of the organ, but the results have not been encouraging.

Hæmorrhage from the urethra, may occur during an attack of chordee, more especially in those cases in which there has been undue violence to the parts. In these cases cold applied to the penis by means of cloths should be first tried, this not arresting the bleeding, then a large size catheter, a soft rubber one preferably, is to be passed into the bladder, and pressure made by a bandage applied around the penis. It is advisable to remove the catheter as soon as possible. It is a foreign body in the urethra, and will add to the irritation which already exists, therefore the catheter is to be removed in twenty-four or forty-eight hours, when the bleeding will generally have ceased.

In order to obtain relief, during an attack of chordee, I have known patients to resort to sexual connection, with the idea that they could overcome the erection by performing this act. Such a method of treatment is to be strongly opposed. First, there is danger of causing further trouble to the patient; it will in all probability have no effect in relieving the attack; it will without doubt increase the symptoms, and very likely occasion some other complication. Second, the gonorrhœa, which is the cause of the chordee, will be communicated to the woman with whom the connection is practised.

While treating the chordee it is not to be forgotten, that it is a complication of the gonorrhœa, and that it depends for its existence upon the irritation of the mucous membrane of the urethra, therefore the sooner this irritation is removed the sooner will the attacks of chordee cease; the indication is

then plainly evident, that the urethritis should receive careful attention and treatment, since upon its recovery will depend the disappearance of the chordee.

The next patient gives us the following history. About five months ago he contracted a gonorrhœa, which received no treatment except that he took a mixture obtained from a druggist. The urethral discharge gradually became less, but at no time did it entirely stop, and to-day we find there is a very small amount of muco-purulent discharge seen at the meatus. The patient also complains of a slight stinging pain, localized at one point in the urethra, when he passes urine. This condition is a complication of gonorrhœa, or perhaps it is more correct to consider it not a complication, but a result of the disease, and it is not an unfrequent one. The lesions which may occasion these symptoms, since there are several pathological changes that may cause them, are a contraction of the urethra, a polypus in the canal, an ulcerated state of the mucous membrane, a granular condition of the mucous membrane, and it is the last, the granular patch, which I wish to speak of to-day.

Granular patches in the urethra are the result of a long continued irritation, which has occasioned an hypertrophy of the mucous membrane and its vessels. The symptom most characteristic of their presence, is a slight muco-purulent discharge, which may be just sufficient to cause a gluing together of the lips of the meatus. The amount of discharge depends very much upon the habits of the patient. If he lives a regular and virtuous life he is very little troubled with discharge, but any excess in drinking, in sexual connection, or even any violent exercise is apt to occasion an increase in the amount of the discharge. In the majority of patients, who are suffering with this trouble, the discharge from the urethra is the only symptom they complain of; now and then, however, a patient suffers some pain in urinating, and this pain is localized at a definite spot in the urethra, it is evidently caused by the urine coming in contact with the granular patch.

The diagnosis of these granular patches in the urethra

may be made in two ways. The history and symptoms are not sufficient in assisting one to reach a positive conclusion, since the lesions which give rise to the symptoms are, as I have mentioned, several, and it is important to ascertain the particular lesion in every case before beginning treatment. One method of diagnosis, is that by exclusion, and this, if carefully carried out, will determine the nature of the case; another and more rapid, also more positive method is the employment of the urethral endoscope. We may suppose the presence of granular patches, but certainty can only be reached by the use of the endoscope; this instrument at once reveals the change in the mucous membrane, and determines the nature of the lesion.

The treatment of granular patches in the urethra by the method of injections into the canal is a tedious and very unsatisfactory one. The employment of the endoscopic tube, in treating this lesion, has very decidedly improved our methods, and recovery is considerably hastened. The manner of using the instrument is to introduce it into the urethra, and when the patches come into view they are to be touched with a solution of nitrate of silver, ten to twenty grains to the ounce, being careful not to have the mop, which caries the solution, more than wet with it, as it is not desirable to have the solution run over the healthy part of the urethra. These applications are made once or twice a week, and in the interval the patient is to use an astringent injection. Internal medication is useless in these cases.

Another complication of gonorrhœa, although not a very common one, is seen in our next patient; it is the swelling of a gland in the groin, an *inguinal adenitis*, a gonorrhœal *bubo*. This complication may arise from several causes. Thus a neglected attack, where the patient has not been under any treatment, where he has disregarded all measures of cleanliness, where he has been improperly treated, and, in a word, it may occur where there has been any cause that may have irritated the inflammatory process in the urethra. In my opinion there is required no specific disease to give rise to this complication, but any suppuration of the

urethral canal may, if it is irritated and becomes virulent, give rise to an inguinal adenitis.

The symptoms of the lesion are that the patient first feels a tenderness, with some swelling in the groin. This gradually increases and becomes quite painful, the skin over the swelling becomes reddened, and there is now felt fluctuation.

The diagnosis is to be made with care, since the lesion may be confused with several other conditions. First, it may very closely resemble a hernia. In both the pain may be very similar, more especially is this the case in a recently formed hernia, one which has not been suspected by the patient, but it differs in that, as a rule, the patient has no gonorrhœa, although this affection may be present in both; in the hernia the swelling is in the inguinal canal line, in the adenitis this is not the case; in the hernia the swelling is usually not so tender as it is in the inflamed gland; in the hernia an impulse may be elicited by coughing, which does not occur in a bubo; at times in a hernia by percussion there may be given a tympanitic note, while it is always dull in the case of an adenitis; then the general symptoms which accompany a hernia, in cases where it is at all in an inflamed condition are quite marked, while with a bubo the constitutional symptoms are very slight; if the hernia is a reducible one it may be made to disappear by manipulation or when the patient takes the recumbent position, this does not occur with a swollen and inflamed gland; later when the gland is in full suppuration the appearance of the over-lying skin is tense and much reddened and there is pointing; this is not observed in a case of hernia. Finally let me call attention to an important point in the differential diagnosis of hernia and inflammation of a gland in the inguinal region, and that is the history of the two cases. If there is a history of a gonorrhœa with swelling, pain, tenderness, redness and fluctuation in the groin the conclusion that we have to do with an adenitis would be correct ninety-nine times out of a hundred.

Second, a gonorrhœal adenitis may be confounded with a swollen and inflamed testicle, which has never descended into the scrotum, but has remained in the inguinal canal, and from the attack of gonorrhœa has become inflamed, therefore always before coming to a conclusion as to the nature of the lesion, look to see if there are two testicles in the scrotum, and if not it is very probable the swelling in the groin is the missing gland, which of course is to be treated in an entirely different manner from a bubo.

Third, it is possible that a hydrocele of the cord may be mistaken for an inguinal adenitis, but the history will remove any doubts.

The treatment of an inguinal adenitis will depend upon the stage at which the lesion comes under our care. If in the early course of the affection, that is before suppuration has begun or when it has only progressed to a very slight extent, then the object of our therapeutics is to prevent the external opening of the abscess, and in many cases this is possible if our directions are followed out. It is always an unfortunate occurrence for the patient to have an abscess open in the groin, since it will invariably leave a scar, which will always tell the tale. Therefore to prevent this should be our object, and in many cases it may be done if the lesion is not too far advanced.

The means are rest and pressure with the application of some resolvent to the local condition, and at the same time to administer a medicine which acts on the lymphatic system. Rest is best obtained by the patient going to bed, and if this is not posssible, then he should move about as little as possible. Locally I have found the application of an ointment composed of equal parts of iodine, belladonna and mercury ointments, to be very satisfactory. This is to be rubbed on every day, and every two or three days the parts are to be well washed with soap and warm water. A large compress and a spice bandage is also to be applied, as tight as can be comfortably worn. The bowels are to be kept open, and two to five grains of potassium iodide are to

be given three times a day. This method of treatment I have frequently carried out with very favorable results.

When the adenitis has progressed so far that it is useless to attempt to prevent the abscess from forming, then time should not be lost by waiting or by the application of poultices, but if you are satisfied pus is present, the sooner it is let out the better, and the less extensive will be the abscess. It is in the treatment of this stage of the lesion, that the progress of surgery has been most marked during the past few years. Formerly it was the practice to poultice the gland for several weeks, until there was formed quite a large abscess, and the pus was almost ready to break through the skin, then a large incision was made through the skin, and the abscess was again poulticed until the cavity granulated up. This usually took weeks, before it was accomplished.

Antiseptic surgery has changed all this, and now we can accomplish the same result in a much shorter space of time, by following the method of not waiting until the pus has collected to form a large abscess, but just as soon as we find the pus present, it is to be let out by a small incision, and the abscess cavity is to be thoroughly washed out with an antiseptic solution, of which the mercury bichloride, 1–2000, is the best. The cavity must be washed out until it is entirely free of pus; this is generally painful, but the success of our treatment will depend upon how thoroughly we do the washing out. If necessary the cavity may be curetted, and if there are any pus pockets this should always be done. Of course before the opening is made the surrounding region must be made as clean as possible by washing and shaving. Finally the cavity is dusted with iodoform, or aristol, an antiseptic dressing is applied, and not disturbed for ten days or two weeks. If there has been no fault in our technique we will find the abscess healed.

VASOMOTOR ATAXIA, ILLUSTRATED BY CASES OF EXOPHTHALMIC GOITRE, GRAVES'S DISEASE, AND LOCAL ASPHYXIA, RAYNAUD'S DISEASE.[1]

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Two of the cases visiting the Clinic to-day, and some others of which notes are upon our records may serve to illustrate some partial phases of a subject clinically important, although pathologically obscure.

The regular and equable distribution and movement of the blood current is of prime importance in maintaining general nutrition and function. It depends not alone upon the heart as we are too often prone to imagine, but likewise in great degree upon the vascular tone. The dilatation and contraction of the vessels in accordance with varying conditions special and general, local and systemic, is currently, and doubtless correctly, taught to be largely if not exclusively under the control of a special nervous apparatus, part of the visceral or sympathetic system, and termed the vasomotor system of nerves and ganglia. Derangement of this system is, I believe, quite an important factor in many chronic diseases and in some acute disorders, wherein its influence is not immediately apparent. Most certainly and most obviously it is an important—the important—factor in the two cases before us.

This colored woman Mrs. X., aged 25, who has borne one child, exhibits several striking symptoms, permitting her case to be diagnosticated, so far as applying a name to it may be termed diagnosis, at a glance. The prominent eyeballs, the enlargement of the neck, the rapid action of the heart, the tremor of the hands, are significant in their

[1] Clinical Lecture at the Polyclinic Hospital.

association. It is a case of Graves's disease—exophthalmic goitre. On closer observation we find that there is in the case an additional morbid element, not necessarily present in Graves's disease—namely an organic heart lesion.

As a rule, functional murmurs are heard in the rapid hearts of patients suffering with this affection, at the apex as well as at the base, and in the vessels of the neck. Murmurs are likewise heard over the enlarged thyroid gland, and as I have several times observed, even in cases which present no prominent thyroid enlargement, a murmur may be heard just beneath the sterno-clavicular articulation. But this patient in addition to the ordinary murmurs dependent upon anæmia and upon inco-ordinate, arhythmical or feeble cardiac muscular contractions, presents just above the apex of the heart, a rough murmur, of the peculiar quality represented in type by the letters b-r-r. It precedes the impact of the heart against the chest wall, and merges into a softer systolic murmur, which, however, does not occupy the entire systole. In the axilla and in the back, the softer murmur alone is heard; the rougher one is not transmitted far from the site of apparent origin. A distinct thrill is imparted to the hand over the site of maximum intensity of this murmur. It is then a presystolic mitral murmur—the murmur of obstruction at the left auriculo-ventricular orifice. The softer murmur indicates slight accompanying regurgitation from failure of the mitral valve to completely close, dependent doubtless upon the same physical conditions that cause the obstruction. The apex beat is displaced downward and to the left, and the area of cardiac dulness is enlarged, but apparently displaced downward and to the left.

Not to dwell now upon details of physical examination, we have been able to diagnosticate a pleuro-pericardial adhesion, the result, probably of the same attack of rheumatism to which the valvular lesion may be attributed; and which according to the history given by the patient, occurred several years before the present symptoms were noticed. Two years ago she had what she termed "grip." On ques-

tioning closely, the symptoms—sudden loss of voice for two weeks with equally sudden return—indicate hysterical aphonia. Since that time, however she has not felt well. She first noticed the swelling of the neck about a year ago. In August, 1891, her menstruation ceased. Shortly afterward she had to go to bed on account of the tumultuous action of the heart; general anasarca developed. She remained in bed five weeks, and then applied to this clinic for relief. Exophthalmos had not yet developed. Dr. Robinson, at that time Chief of Clinic, prescribed for her, infusion of digitalis and compound jalap powder, and the dropsy disappeared.

She did not return to the clinic, and except that her eyes became prominent, remained apparently well until January of this year when she again had "grip"—that is, hysterical aphonia—which, however, lasted only one week. Ascites and anasarca again developed, and it was for relief of these that she applied on March 4, 1892. Examination at that time developed in addition to the general enlargement of the abdomen due to the ascites, a peculiar œdematous thickening of the skin in a crescent-shaped area of which the limits of the horns were marked by the anterior superior spine of the ilium on each side; the upper limit of the curve passing across the median line about two inches below the umbilicus and its lower limit about one inch above the symphysis pubis. The urine contained neither albumin nor sugar. Tube casts were not found. We did find however, and this is a point to which I would call special attention, red blood-cells. I have repeatedly seen these in the urine of patients with exophthalmic goitre, and twice in cases of angio-neurotic œdema, as well as in other cases of an undetermined nature which I am not prepared to record as yet, until I accumulate a larger number of instances. It bears out the idea, I think, that vasomotor paresis is an essential phenomenon of the disease. There is no evident discoloration of the urine; we would not suspect the presence of blood or blood elements.

The patient has not had epistaxis or other hæmorrhage

or any cutaneous eruption. In the case of a woman treated here some years ago, recurring hæmaturia was a distressing symptom. In another woman I saw at Jefferson Medical College Hospital, there were purpuric blotches upon the mammæ. In a man under my care at the Philadelphia Hospital there were repeated hæmoptyses. These are simply instances that occur at the moment, but there are others in our records of hæmorrhages from various parts of the body and indeed the tendency to escape of blood from the vessels is a familiar feature of the disease, though, strange to say, it is not emphasized in the text books. I now make it a practice to look for red blood-cells in the urine in young girls presenting any phenomena suggestive of incipient Graves's disease, and if I find them, I treat the case with the view of preventing the development of further symptoms. This of course renders it impossible to affirm with positiveness the prophetic value of the sign, but I give it to you for what it may be worth in connection with the presence of red cells in the urine of this patient, and the occurrence of hæmaturia in the case cited.

Notwithstanding the evident exopthalmos, we do not find in this case, Von Graefe's sign. There is no apparent disturbance of consentaneous action between the eyeball and the eyelid.

The etiology of the disease is obscure. It is most common in hysterical women, and often follows fright and mental emotion. In the case of a choreic girl under my care some years ago it developed acutely after a fall from a ladder. In a colored woman not apparently hysterical, but suffering with uterine disorder giving rise to metrorrhagia, who was under treatment here some years ago, it followed fright; her drunken husband had threatened to kill her. This patient before us is separated from her worthless husband, and has had much worriment. There is neither history nor evidence of venereal disease.

The treatment under which she has been placed and which seems to have brought about a decided improvement was rest in bed, a strict milk diet, free purgation, and the

administration of infusion of digitalis. She is now about to go home, and we will tell her to keep as quiet as possible, to live upon nourishing, easily digested and unirritating food and to avoid constipation. We shall continue the digitalis, and give with it Basham's mixture, for tonic and diuretic effect. As a rule digitalis, iron and arsenic are the most useful drugs in cases of this nature; digitalis by its action upon the pneumogastric quieting the heart, and by its action in the vasomotor system restoring tone to the vessels. The digitalis is indicated here likewise by the cardiac lesion. By prolonging the diastole it allows a longer time for the blood to flow through the obstructed mitral orifice. In any cases however digitalis will be found inefficient. I have, following a suggestion of Bartholow's, used ergot and picrotoxin and sometimes with quite happy results. The picrotoxin is a stimulant to the vasomotor centers, and so regulates the vascular tone, that the heart is soothed and quieted, while the ergot has a similar effect upon the centers, and acts as well upon peripheral vessels.

Miss A. is the same age as the other patient. For the last three or four months, she has had almost constant headache with occasional dizziness. Vision is at times misty. The bowels are constipated; the tongue badly coated. The feet sometimes swell. She does not rise at night to micturate. She has no cough. At times she has had pain in the region of the heart with palpitation. For about two years she has noticed that several times a day, especially if exposed to cold, either by immersing the hands in cold water or otherwise, the fingers suddenly become discolored—purplish. This discoloration begins in the palm of the hand and extends downward. Both extremities are affected at once. It lasts but a few minutes and disappears quickly.

Questioning and cross-questioning confirm the account of the manner and character of this discoloration, and we see that we have before us an instance of the disease to which the name of "Raynaud" is attached, and which appears in three degrees of severity, to which the names are respectively given of "local syncope", "local asphyxia" and "symmet-

rical gangrene." As a rule it affects the fingers, or fingers and toes, upon both sides. Sometimes the ears, or nose may be involved, sometimes more or less extensive areas of the limbs and trunk. Chilblains are by some regarded as a variety of the same affection. This patient exhibits in mild degree local asphyxia, or in other words, local pulselessness.

Through a sudden spasmodic contraction of the smallest arteries, arterial blood ceases to enter the fingers, and through a concomitant relaxation of capillaries and venules, venous blood accumulates in the discolored regions. Local syncope is less marked. The fingers become white and cold from spasmodic obstruction to the entrance of blood into the fingers, but venous blood does not accumulate in the affected parts. Later, from reaction, dilatation of the terminal vessels takes place and the fingers become hot and red. The distribution of symptoms is not always regular. Syncope and asphyxia may be mingled or one finger may be red in reaction while the next is still stone cold. In the high grades of local asphyxia the formation of bullæ and slight destruction of skin follow the discoloration.

Symmetrical gangrene is a much graver affection, actual necrosis of tissue taking place. This too has various grades, and while a condition apparently theatening may result in but slight destruction, at times there may be loss of a digit, or of the tip of the nose, or in extreme cases, the disease may affect the limbs and trunk, and rapid gangrene may even result in death.

Examination exhibits all over this patient's arms, mottled areas of irregular distribution, indicating by their varying color and by the appearance of the distended vessels, both capillary and venous congestion. Over the upper part of the chest anteriorly and in the back especially beneath the scapulæ, we see congeries of distended superficial veins. The legs and feet appear not to be affected.

The first phalanx of the middle finger of the right hand is thickened, the skin over it glossy and the veins very much distended. Twelve years ago the patient had a swelling on this finger, which was lanced and kept on discharging until

lately. There is a depressed cicatrix indicating the point of puncture.

There is no evidence of necrosis or inflammatory process at present. There is no history of injury to account for this condition of the finger and at present it is impossible to say to just what origin it is to be attributed. I cannot help thinking that it is connected with the present condition. Sometimes anæsthesia and sometimes pain is associated with Raynaud's disease; in this case on superficial examination we find no anæsthesia and there is no history of pain.

The patient is apparently anæmic. We will have the blood examined microscopically and estimate its percentage of hæmoglobin.[1] Upon physical exploration of the chest we can detect no lesion of the lungs; no enlargement of the heart. The rate of the heart is 96. No murmur is detected at the apex. At the base there is a soft systolic murmur most marked over the area of pulmonary valve sounds, and in the veins of the neck we notice a marked musical hum, the *bruit de diable*, most intense upon the right side. There is no enlargement of the thyroid gland.

I alluded to hæmaturia and hæmatocythuria as phenomena accompanying Graves's disease. Hæmoglobinuria is sometimes associated with Raynaud's disease; and the curious affection termed paroxysmal hæmoglobinuria which is caused by cold, and of which we have had here one example, may indeed be a closely allied condition. So too doubtless is angio-neurotic œdema of which we have had but two cases in the seven years of my service in this clinic. We will have this patient's urine examined[2] and refer her to the eye department[3] for determination of the condition of the eye ground and also to see whether or not the headache of which she complains is due to error of refraction. We will give her two compound rhubarb pills at bedtime in order to

[1] Blood examination showed: hæmoglobin 65 %; red corpuscles 4,383,000; no excess of white corpuscles, no deformation of blood cells.

[2] Examination of the urine; specific gravity 1018. No albumin, no sugar, neither casts nor blood cells.

[3] Examination of the eyes revealed compound hyperopic astigmatism; no lesion of the fundus. Glasses were prescribed, which relieved the headache.

get rid of the constipation of which she complains and which may be a disturbing factor in the distribution of her circulation. For the relief of the tendency to vascular spasm, we will give her nitro-glycerin, one drop of a one-per. cent, solution three times a day. Should the examination of the blood, of the eyes, or of the urine, reveal additional pathological elements in the case, they will be treated accordingly.[4]

These two cases, contrasted though they are in symptomatology, may, I think, be justly included under one clinical generalization—vasomotor ataxia. Neither in Graves's disease nor in Raynaud's disease are the phenomena exclusively those of paralysis or those of spasm; in the former as a rule, paralysis predominates; in the latter, spasm is the more prominent, but in both, the paresis or the spasm is due to want of control—ataxia. The inhibiting, regulating mechanism is impaired, and the balance of function fails to be preserved. Many other affections might be correlated with these from a similar standpoint—angio-neurotic œdema, urticaria, some forms of asthma—perhaps even myxœdema, and other rare and curious affections characterized by hypertrophy or atrophy of the thyroid gland. Indeed I have long thought that the apparent hypertrophy of the thyroid is in effect an atrophy; that is to say there is interference with its function, and this in the economy of the system is virtually a functional atrophy of the organ. While we do not know its function, recent investigations would seem to indicate that it either removes from the blood certain katabolic products that might become toxic, or throws into the blood certain anabolins that act as anti-

[4] By the use of nitro-glycerin, the tendency to local asphyxia has apparently been entirely relieved, there having been no return of the symptoms for one month. Patient states that previous to coming under treatment, the attacks had occurred almost daily, and had never intermitted for more than three days.

The headache has disappeared. The venous hum in the neck is not quite so marked. The feet do not swell. There is at times considerable perspiration, especially in the hands, which previously had not been noticed.

In addition to the treatment with nitro-glycerin, a solution of albuminate of iron, one drachm three times a day, was prescribed in treatment of the anæmia, this preparation being selected because it constipates less than do other chalybeates.

dotes to the waste products of function in general. The problem is a large one, I can now only indicate its bearings in this imperfect manner. Even had we complete data, they could not be elucidated except in an elaborate study. It is, however, worthy of your reflection.

BURN AND ABSCESS OF THE CORNEA.—PARALYSIS OF IRIS AND ACCOMMODATION FOLLOWING DIPHTHERIA.[1]

By Samuel D. Risley, A. M., M. D.

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REPORTED BY

John T. Carpenter, Jr., M. D.

INSTRUCTOR IN DISEASES OF THE EYE AT THE PHILADELPHIA POLYCLINIC.

Gentlemen:—I bring before you to-day, a group of cases presenting many points of practical importance to every physician. (1) A severe burn from a splash of molten steel, resulting in a large corneal abscess. (2) Two children, sisters, afflicted with paralysis of the accommodation, occurring as a sequel of diphtheria. These are conditions you are liable to meet in the daily routine of professional work. I will ask you to study first the eye, now convalescing from the burn by hot metal.

BURN BY MOLTEN STEEL. CORNEAL ABSCESS. SÆMISCHE'S OPERATION. POSSIBLE DIPHTHERITIC COMPLICATION.

Six weeks ago, this man, aged 30, received a splash of molten steel in the right eye. I saw him about six hours after the injury. The edges of both upper and lower lids were seared, and some of the fluid metal had entered the conjunctival sac, searing superficially the lower half of the cornea, and causing a much deeper eschar in the bulbar conjunctiva, below the lower limbus of the cornea. The

[1] Clinical Lecture at the Polyclinic Hospital.

upper tarsal conjunctiva had also been deeply burned, and lay there in situ—a whitish-gray seared tissue. The injury itself was sufficient to imperil the integrity of the eye, but its gravity was greatly increased by the fact that he was living with his sister, two of whose children were lying in the house, dead from a malignant type of diphtheria, and two others so ill that they also succumbed the following day, and for several nights he had aided the family in nursing these sick children. The eye was thoroughly cleansed with corrosive sublimate wash, atropine instilled, finely powdered iodoform dusted over the eschar, a light protecting dressing applied, and he was removed from the source of diphtheritic infection.

The following day the seared tissue separated, leaving an extensive area of the cornea denuded of epithelium, and a large patch of white ivory-like sclera below the limbus of the cornea, thus threatening the corneal nutrition through the destruction of its blood supply below. The eye did well, however, for four days. He then returned with greatly increased pain; lids red, hot and slightly thickened; while the conjunctival surface of the upper lid was covered with a gray film. A grayish mass occupied the eschar at the lower part of the ball. The lower half of the cornea appeared macerated, and there was a yellowish-white, deep infiltration of its substance settling by gravity, between its layers, to the lower border of the cornea. He was then given tonics, the sublimate wash directed to be used at frequent intervals during the day and night, and the pain to be relieved by compresses wrung from water as hot as could be borne without scalding and iodoform applied to the conjunctival sac daily at the clinic. In spite of this an abscess formed, occupying the greater part of the lower half of the cornea, but the gray film over the conjunctiva disappeared. A narrow Graefe's knife was passed freely through the abscess, being careful not to enter the anterior chamber.

Notwithstanding this precaution the entire contents of the abscess were suddenly evacuated, followed by a spurt of aqueous through a small rupture in the posterior wall of

the abscess and was accompanied by violent pain which slowly subsided. In passing, let me observe that you must not be surprised at the excruciating pain following this simple operative procedure known as "Saemisch's operation for abscess of the cornea," for almost without exception it follows the evacuation of the abscess contents and need excite no alarm. After the operation the eye was deluged with the sublimate wash, eserin (gr. j ad f℥ j) instilled, instead of atropine. The finely powdered iodoform was dusted over the wound and a bandage carefully applied. His improvement dates from this time. You will now perceive the uneven surface of the lower half of the cornea, but through it the iris can be indistinctly seen, and, as you observe, he is able to count figures at two feet. The injury to the bulbar conjunctiva has been repaired, leaving surprisingly little permanent damage, and he bids fair to escape a symblepharon—the bane of these conjunctival burns. By some fortuitous circumstance the deep cul-de-sac and lower tarsal conjunctiva escaped, probably owing to the presence of a collection of tears at the time of the injury. The upper lid, however, presents a long scar closely simulating the cicatrix we so often see as a sequel to chronic granular lids. Near the outer canthus there is a button of granulations surrounding a fistulous opening into a Meibomian gland. He is now using the sublimate wash and a solution of sulphate of eserin (gr. $\frac{1}{20}$ – f℥ j) three times daily, and is rapidly recovering. It is interesting to inquire whether the corneal abscess was of mycotic origin, resulting from the exposure of the denuded surface to the diphtheritic infection mentioned; or was it the result of corneal necrosis, produced by disturbed nutrition, resulting from the loss of the contiguous blood supply. The subsequent rapid repair was probably due to the healing of the eschar at the corneal limbus and the restoration of the blood vessels.

PARALYSIS OF THE IRIS AND ACCOMMODATION FOLLOWING DIPHTHERIA.

These two little patients, aged respectively, 6 and 8 years, are subjects of one of the forms of local palsy following

diphtheria. The soft palate was first attacked in both cases and the paralysis is still present in the younger child. The other was sent home from school because she was unable to see to read, and, in consequence, was brought to the hospital yesterday. The eye trouble had not been noticed in the case of the younger child, but the mother brings her to-day, at my request, for examination. You will observe that in both of the children the pupils are dilated, large medium and are nearly fixed; while further investigation shows that the power of accommodation is lost. In my experience this has not been a frequent occurrence, but it is probable that it often occurs and recovery takes place without the affection having been detected by physician or patients. The prognosis is good. I do not recall any instance where recovery did not occur, and I have never seen the paralysis involve one of the external ocular muscles, although supplied by the same nerve that controls the movements of the iris and ciliary muscle. Palsy of the straight muscles does, however, occur, but less frequently. The method of detecting this trouble should be understood. You have already been taught the physiology of accommodation. When the ciliary muscle is paralyzed the near point recedes, and, if the paralysis be complete, coincides with the far point of the eye. In other words, you will observe a condition identical with that caused by instillation of a strong mydriatic with this exception, namely, that the dilatation of the pupil is not so wide as that after using a mydriatic in young people. Occasionally the iris escapes the paralysis, the ciliary muscle alone being involved. If the eye be emmetropic distant vision will not be impaired, but the child will be unable to read print held in the hand. If a convex lens be used print will then be read only at its focal distance. The paralysis is usually partial, so that ordinarily the patient will be able to read a few inches, more or less, within the focus of the lens. Yesterday this older child had V. = $\frac{6}{6}$ in each eye and with + 3. D. could read D. = 0.50 from 33 ctm. to 28 ctm. She was given an iron and strychnine tonic internally, eserin sulphate (gr. $\frac{1}{10}$ –f$\bar{3}$ j) three

times daily locally, and she was directed to remain from school, and wear a pair of smoked glasses to protect her eyes in bright light. You will observe that to-day there is slight reaction of the iris to light and shade on the right side, while the left remains fixed. The same treatment will be directed for the younger child. There is apt to be more or less impairment of the function of accommodation during convalescence from other forms of exhausting disease, but it is a part of the general muscular weakness and differs essentially from the diphtheritic palsy. It has been claimed that local palsies follow, also, other forms of sore throat not regarded as due to diphtheria, a claim I am not prepared to substantiate or deny.

THE DIAGNOSIS OF RECTAL DISEASE WITH ESPECIAL REFERENCE TO THE PHYSICAL EXPLORATION OF THE RECTUM.

By Lewis H. Adler, Jr., M. D.,

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Gentlemen:—The subject to which I invite your attention this evening is one of considerable interest owing to the great importance, which of late years, has been attached to the study of diseases of the rectum and to their rational treatment. Especially is this so, when you recall the vast amount of suffering produced by these diseases, how readily the majority of cases are susceptible of relief and cure in careful hands, and on the contrary, how easily and frequently they are mismanaged and erroneously diagnosed by the unskilled and careless. Therefore, I am inclined to think that some practical suggestions as to the manner of investigating these affections and the methods of exploring this portion of the bowel will prove of interest.

THE ORAL EXAMINATION OF PATIENTS.

In investigating a case of rectal disease it is well, in the first place, to let the patient describe his symptoms in his

own words; then, by a few well-directed but not leading questions, we may be able to complete the history. The following are the principal queries which may be asked with advantage:

First, in reference to pain.—Is there any pain? If so, of what character? Is it situated in the rectum? What is its relation to the act of defecation? Is it worse during evacuation, shortly afterwards, or some time after the movement? Is itching, sense of fullness, or heat complained of?

Second, regarding protrusion at the seat.—Is there any swelling or protrusion at the anus? Does this occur only at defecation, or is it independent of this act? Does it bleed? Does it go back spontaneously, or has the patient to return it?

Third, as to the presence of a discharge.—Is there any discharge? If so, what is its nature? (Bloody, mucus, or purulent.) Is it of offensive odor? Does it occur before or immediately after defecation, or is it independent of the action of the bowels?

Fourth, as to the patient's habits regarding the movements of the bowels.—Is he regular, constipated, or does he suffer from diarrhœa? The character of the fecal evacuation, as to size, consistence, form, etc.

Finally, the following general interrogations should be made: Does the patient cough, have night sweats, spit blod, or has he any tendency to chest trouble? What are his habits of life, especially with reference to the use of alcoholic liquors, tobacco and to indulgence in venery? Lastly, enquire as to any hereditary tendency to rectal disease, malignant trouble, liver or heart affection. In women enquire into the condition of the sexual organs, etc. Whenever the idea of any operative procedure is entertained, the urine should be examined and a physical examination made of the heart, lungs and liver.

Having clearly obtained the subjective symptoms, we should, if there is even a suspicion of rectal disease, insist on a thorough local examination; for, as Dr. Chas. B. Kelsey

writes in his excellent treatise on "Diseases of the Rectum and Anus:"

"The symptomatology alone may be of great value in the diagnosis of rectal disease; it is almost never sufficient in itself for a diagnosis. There is a train of symptoms common to almost all diseases of this part and which infallibly point to trouble of some kind, but they do not tell what that trouble is. The pain of a fissure is, perhaps, diagnostic of the fissure, but it does not tell what troubles may be associated with the fissure; and so it is in every other affection."

This is the point I wish to lay special stress upon. "For this reason, the practitioner who attempts to treat a case of disease of the rectum without first making a direct examination, uselessly risks his reputation as a diagnostician."

Dr. Kelsey in his practice is guided by the simple rule that patients, male or female, who have not yet come to the point which makes them willing to submit to an examination, have not yet reached a point which admits of treatment.

Continuing, Dr. Kelsey says: "An examination, especially in women, it sometimes, though not often, difficult to obtain, and the dread of it keeps many sufferers from seeking relief; but still the rule I have laid down is the only safe one, and the surgeon who allows himself to be persuaded into recommending something for piles will sooner or later have a mistake in diagnosis laid to his charge, nor will the fact that he was moved by consideration for the patient's sensibilities save him from blame."

WHAT IS REQUIRED.

Having decided upon the existence of rectal disease, how shall we proceed to confirm our diagnosis and to obtain positive information upon which to base our prognosis and to guide our treatment? This can be best done by the combined visual and tactile examination of the part. If possible, the patient should have the bowel emptied by an

enema immediately before an examination is attempted. In the case of female patients, the neglect of this point will often render a thorough examination, without resort to anæsthesia, impossible. The fear of an accident will frequently, in such cases, result in a tightly closed sphincter, which no effort of the surgeon can overcome.

The patient should be placed upon a good examining chair or table. In my office, I use a gynæcological chair, which combines all the requisite qualifications for this work: being hard, without springs and about three feet in height.

Regarding light, either natural or artificial light may be used. I prefer the latter, for the reasons that it is always obtainable, and by means of a head mirror, is easily thrown up the bowel or concentrated upon any particular point requiring observation. The lamp, which I employ is an argand burner attached to a physician's gas bracket, on which is a Mackenzie's condensor.

The instruments to be employed are: specula of various forms, bougies a rectal probe, (made of silver, useful for the exploration of fistulous tracts, etc.), an exploring needle or small trocar (by means of which we can ascertain the character of any swelling or fluid collections met with in these parts), sponge-holders, cotton, basins, etc.

PHYSICAL EXAMINATION.

Inspection. Having everything in readiness for the examination we now proceed to note the condition of the external parts. On separating the buttocks the orifice of the anus will come into view. The radiating folds should be separated with the fingers, and cracks, excoriations, and fissures should be looked for. External hemorrhoids will also be noticed. By passing the finger around the anus and making pressure, any induration that exists will be detected; this may be due to a fistula or an abscess. If the parts are covered with a discharge, it should be wiped off and its source traced, as to whether it be from the external opening of a fistulous tract, etc. Eruptions of any kind, eczematous, syphilitic, or otherwise, must also be noticed.

The next step is to examine the interior of the rectum. To facilitate this procedure, Mr. Allingham recommends the administration of an enema. In fact, that gentleman holds that no examination of the bowel can be considered as *complete*, unless this is done. When the injection has come away, any protrusion that has taken place can be carefully inspected.

The protrusion may be due to internal hemorrhoids, prolapsus or polypus. Each of these are without difficulty distinguishable: A prolapsus is a descent, usually, of the whole circumference of the bowel, and in mild cases consists simply of a prolapse of the mucous membrane; in severe cases, it may involve all the coats of the bowels, including the peritoneum. In such cases, the lumen of the intestine is seen in the center of the protruded mass, which is soft and uniformly smooth, and is not pedunculated. On the other hand, internal hemorrhoids are usually tense, rounded tumors, or else lobulated, like a bunch of grapes: whilst polypi, whether hard or soft, when protruded, are always possessed of a pedicle.

A *digital examination* should now be instituted, and it is by this means that the most important information is to be obtained. *This procedure should never be omitted in cases of supposed rectal trouble.* I would again emphasize this point for the reason that I have seen grave errors committed through its omission. One such instance is fresh in my mind of a patient who had a malignant stricture of the rectum, complicated with hemorrhoids, internal and external. The patient sought relief for "his piles," (as is usual in such cases) being ignorant of the existence of the cancer. His physician examined him, by inspection simply, saw the hemorrhoids, advised operation, obtained the patient's consent and removed the hemorrhoidal mass. It is needless to say that relief was not obtained from the operation.

A digital investigation of the rectum is not very pleasant either to the patient or to the practitioner, yet without it, the physician needlessly sacrifices his reputation and risks

his patient's life. The nail of the index finger being well-trimmed and the finger lubricated with carbolized olive oil, which I prefer to vaseline or other similar substances, is introduced into the bowel by a slow boring motion, in a direction, at first, slightly forward. This should be done gradually, so as to allow the sphincters time to relax; if attempted hurriedly or in too forcible a manner, spasm of the muscles will to a certainty be induced. As the finger enters, the condition of the sphincter is first to be noted. The strength of the muscle, as measured by its power of resistance, will be found to vary greatly in different people. In the aged or debilitated it is long; in the strong and healthy it is the opposite. In persons of a nervous tendency a spasmodic contraction may be met with; which, owing to the pain, will render an examination impossible without the use of an anæsthetic.

The finger should now be steadily passed up to the fullest extent, and by telling the patient to bear down forcibly, the rectum can be explored for a considerable distance. Additional length may be gained by passing the rest of the fingers backward along the intergluteal groove, (instead of closing them in the palm, as is generally done, and pressing the knuckles against the soft parts) for the knuckles prevent the full passage of the index finger.

In this way, about three inches and a half of the rectum may be explored. Malignant infiltration, or stricture, can be detected, if situated within reach. By sweeping the finger around the mucous membrane, its condition can be noted; a general smoothness, and absence of the normal folds indicating atony. Ulceration may be recognized; and the attachment of polypi can be felt.

In examining for a polypus, it is important that the finger be brought from above downward; as, otherwise, the growth may be pushed out of reach owing to the length of the pedicle, which is often considerably elongated.

Fæcal masses in the rectal pouch can be recognized without difficulty. The condition of the surrounding contents of the pelvis should also be noted, including the prostate,

neck of the bladder, the uterus and the anterior surface of the coccyx and lower part of the sacrum. The finger is now partly withdrawn, passing the palmar surface around the entire surface of the mucous membrane as this is done, in order to note the existence of internal openings of fistulæ, the seat of ulcers, etc.

As the outlet of the bowel is approached, internal piles may be perceived, but the fact should always be borne in mind that internal hemorrhoids unless thickened by inflammatory changes, are extremely hard to recognize by the touch; in point of fact, the sensation conveyed to the finger by this affection is more apt to deceive the surgeon than any other rectal disease.

Mr. Chas. B. Ball states in his admirable treatise on "The Rectum and Anus, Their Diseases and Treatment," that he has frequently seen cases in which these growths, although scarcely appreciable to the touch, were found, upon ocular examination after dilatation of the sphincter, to be of considerable size." This, he claims is owing to the fact that they are so soft and movable that they resemble closely in feel the normal columns and folds of the mucous membrane. When thickened by inflammatory change, etc., no difficulty should be experienced in their detection.

The use of the speculum. In the large majority of rectal diseases, digital and ocular examination is sufficient for purposes of diagnosis, but for some cases the use of the speculum is a desirable adjunct. These instruments are made in a variety of forms. Their use is contra-indicated in acute inflammation of the anus or the rectum, or when extensive carcinomatous degeneration is present.

The speculum which I commonly use is the one that is usually employed for vaginal examination,—namely Sims', modified for rectal work by having a groove where the blade joins the handle for the sphincter to rest in, as suggested by Dr. Van Buren. The blades are made narrower than those used for vaginal work.

Before being introduced into the rectum, the speculum should be warmed and well lubricated; it should then be

inserted into the anus, and gently but slowly directed a little forward and upward for a distance of about an inch, as if to pass from the perineum to the umbilicus, in order that it may follow the course of the anal canal; having reached this depth, which is somewhat greater in the male than in the female, the point should be inclined backward, first slightly, and afterwards to a greater extent, until the instrument is fully in.

Should the interior view of the rectum be obstructed by mucus, blood or fæces, a mop of cotton attached to a sponge-holder should be used to cleanse the part. With this speculum the interior of the rectum can be examined and the exact condition of affairs ascertained. Other forms of specula are furnished with blades or plates which can be separated to the requisite extent by means of a screw apparatus.

Anæsthesia is generally desirable when the introduction of a speculum is required; the examination will be materially facilitated by a previous dilatation of the sphincters. This dilatation is best accomplished in the following manner: First one and then the other thumb should be insinuated into the anal orifice, the fingers being laid flat over the buttocks on either side; then by firmly grasping the tubero-ischii, the anus should be gradually but firmly stretched; this process should occupy several minutes. It is well to adopt the plan of Mr. Allingham, of dilating as well in the antero-posterior direction. The resistance offered by the sphincters will be found by degrees to give way, and after a time the sense of resistance will disappear.

The use of the rectal bougie.—Bougies are instruments to which recourse is had when we wish to estimate the calibre of the upper portion of the rectum or the end of the sigmoid flexure of the colon. These instruments are of all forms, sizes and materials but the best form is the one recommended by Dr. Chas. B. Kelsey, made of red rubber and very pliable.

The introduction of any of these instruments is one of more or less difficulty and requires quite as much practice as the passage of a urethral catheter; the danger of perfor-

ation being as great, and the result of such an accident very much more serious than in the urethra. In the one case a fatal peritonitis will likely be started, while in the other a false passage will probably be the sequence.

It is only in occasional cases that bougies are of special value as a means of diagnosis; more often, their use, especially in the hands of the inexperienced is fraught with more harm than good.

The colonscope of Bodenhauser, or the endoscope, is of little, if any, practical utility, owing to the very limited portion of the bowel which is brought into view.

Rectal Eversion as a Means of Diagnosis.—In examining the rectum in women, Dr. H. R. Stover, of Boston, has recommended eversion of the bowel by the fingers passed into the vagina. This method is useful in women who have borne children, but not in the young and unmarried. A small portion of the anterior wall, may thus be exposed and examined.

The introduction of the hand into the rectum.—This procedure may be a means of exploration open to the surgeon, in a few rare instances, where milder means have been tried without success. It must be resorted to with care and only by persons possessing small hands.

Exploration with the probe.—A silver probe, seven or eight inches long, is of much value in detecting blind, external, internal or complete anal fistulæ. It may be used either straight or curved.

Injections of various colored fluids—Such as milk or a solution of iodine, often serve a useful purpose for detecting the internal opening of a complete fistulous tract. The method of their employment is obvious.

Finally, I would impress you with the importance of giving an anæsthetic, clearing out the lower bowel with an enema, forcibly dilating the sphincters, and examining the abdomen bimanually,—one finger in the rectum, the other hand pressing deeply into the left iliac fossa in all cases in which the symptoms are obscure and the diagnosis doubtful.

ENDOMETRITIS.

By Charles P. Noble, M. D.

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Gentlemen:—The subject of endometritis which I shall bring before you to-day is one of the most important in the field of gynæcology. It is important not only because endometritis is a very common disease among women but also because inflammation of the uterus itself, and of the Fallopian tubes, ovaries and peritoneum are direct extensions of the disease. Inflammation of these structures seldom occurs except as an extension of endometritis, hence, it follows that the prophylaxis or early cure of endometritis would almost entirely prevent the manifold varieties of acute and chronic pelvic inflammation in women. How much this means can be appreciated only by those who realize the great prevalence and the gravity of the conditions in question. Endometritis is a subject of importance to you also as general practitioners of medicine, because it is to you that these cases go for treatment during the early stages of the disease when judicious treatment can accomplish so much, by curing the disease and thus preventing the extension of the inflammation to the uterine appendages and the peritoneum. The treatment of endometritis certainly comes within the scope of the general practitioner's functions, and if he has cultivated the art of surgery as well as that of medicine he should be able to treat it successfully.

Three varieties of endometrites are commonly seen clinically. These are the post-puerperal or septic, the gonorrhœal and the simple. The names of the first two varieties are sufficiently descriptive. The third variety embraces those cases in which the infective germ does not belong to one of the specific diseases. It embraces cases seen in virgins and nulliparæ who have not had gonorrhœa, cases in which the exciting cause was such as pelvic congestion or a stenosed

In the simple variety the onset of the symptoms usually is gradual and there is no history pointing to sepsis in child-bed or to gonorrhœa. Stenosis of the cervical canal, constipation or a displacement of the uterus are frequently found as exciting causes. In young women the inflammation is frequently limited to the cervix, and erosion of the cervix is a marked feature.

Uterine leucorrhœa is a prominent symptom in all cases, its character depending upon the nature of the case. It varies from the transparent thin mucus of mild corporeal endometritis or the thick mucus "like boiled starch" of cervical endometritis, to a muco-purulent or a muco-hæmorrhagic discharge. When a uterine leucorrhœa is decidedly purulent or is sanious the diagnosis of endometritis is established. But it is difficult to distinguish between the almost transparent discharge of a mild catarrhal endometritis and the hyper-secretion which is due to uterine congestion or to general debility, or dyscrasia.

The conditions revealed by a physical examination depend upon whether the endometritis is uncomplicated or not. If uncomplicated, the uterus will be found upon bimanual examination to be scarcely if at all enlarged and but slightly painful on pressure. But if, as is commonly the case, subinvolution or metritis be present the uterus will be found enlarged and, in the more acute cases, somewhat tender on pressure. If a careful examination gives much pain it will be because pelvic congestion or inflammation of the uterine appendages exists as a complication.

Inspection of the cervix through the speculum reveals as a rule a uterine leucorrhœa, and erosion or laceration of the cervix. If the history indicates a uterine leucorrhœa and none is seen on examination, if the vagina is tamponed for a day after the method of Schultze and if then the tampon is carefully removed the characteristic discharge will be found upon it. The signs to be elicited by the use of the sound I shall not dwell upon; because in my judgment the use of this instrument is not necessary in making the diag-

cervical canal. The infective agent gains access to the vagina, and under favorable conditions, invades the uterus. For our present purpose it will be sufficient to say that post-puerperal endometritis is apt to be hæmorrhagic from the development of uterine fungosities, and that gonorrhœal endometritis is apt to be suppurative. In my experience the gonorrhœal variety is the most chronic, the most liable to recurrences, the most apt to extend to the tubes and the most difficult to cure.

The diagnosis of endometritis is based upon the history of the symptoms and more especially upon the results of a physical examination. The history of an endometritis varies with the nature of the infection and also with the constitutional vigor of individual patients. In the post-puerperal or septic variety there is the history of an abortion or a labor with a febrile puerperium. The primary septic symptoms may have been mild or grave, but there is always a history of tardy "getting up," with prolonged and recurring lochia, and later, the development of leucorrhœa, with some pelvic discomfort, and with general debility. The symptoms, aside from the leucorrhœa and some slight discomfort, depend rather upon complicating subinvolution or metritis which in septic endometritis is usually present. In cases of long standing, menorrhagia and metrorrhagia are frequent symtoms.

In the gonorrhœal variety, at times a frank history is obtained; at other times the examination will only be able to elicit an indefinite history—perhaps the trouble originated in a "severe attack of whites," which caused irritation of the external genitals. Often the history is indefinite and diagnosis must rest on the existence of tender glands of Bartholin or scars marking old vulvar abscesses, together with the existence of vaginitis as a complication of purulent endometritis in a woman who can assign no reasonable cause for the existence of the trouble, and whose pelvic organs otherwise are healthy. An absolute diagnosis rests upon the discovery of the specific coccus by bacteriological tests.

nosis, hence, its use, with the pain and risk involved, is to be avoided.

The treatment of endometritis is both general and local; and the local treatment may be operative or non-operative. endometritis is due to germ infection, and as the resulting inflammation causes thickening (hypertrophy or hyperplasia) of the mucous membrane, and results, in the formation of villous growths, or in the blocking up of orifices of many of the innumerable glandular ducts which are present, it follows that treatment should have as its object the destruction of the invading germs, and the removal of the thickened membrane, or that it assist the tissues themselves in accomplishing these objects. When the endometritis is of marked type these ends are best secured by dilatation and thorough curetting of the uterus under rigid antisepsis together with subsquent applications of carbolic acid or Churchill's tincture of iodine to the endometrium. In very chronic cases in which there is great thickening of the endometrium with general involvement of the glands of the corpus to the cervix it may be necessary to repeat the process The peculiar nature of the endometrium takes away from this plan of treatment certain objectionable features which it would otherwise have. Under normal conditions the superficial layer of the endometrium is cast off as debris every month as a part of the function of menstruation, hence in removing the thickened membrane in endometritis the surgeon is but imitating a natural process. Again it might be supposed that scar tissue would form as a consequence of the use of the sharp curette, but here again the peculiar anatomical conditions present prevents this, for the deeper layers of this gland-like mucous membrane dip down between the muscular fibres of the uterus so that practically it is impossible to remove this deeper layer, which has the property of reproducing the membrane, as occurs normally after menstruation.

Right here I wish to emphasize the fact that this plan of treatment is advised only for cases of endometritis in which

the inflammation *has not extended to the uterine appendages and peritoneum.* The co-existence of metritis or subinvolution is not a contra-indication.

For the treatment of uterine congestion with leucorrhœa, due to pelvic tumors or to various states of the general economy, this plan is contra-indicated because it can do no good; and in the treatment of endometritis, complicated by salpingitis or pelvic peritonitis it is contra-indicated because it may do great harm. Past experience has shown that under these conditions acute salpingitis or peritonitis frequently follows the operation. In my judgment the necessity for careful differential diagnosis in these cases cannot be too strongly insisted upon, in order that uncomplicated cases of endometritis may be separated from the complicated cases. Experience has shown that in the one dilatation and curetting is curative and safe, and that in the other the procedure is futile and dangerous.

Dilatation and curetting is an operation which requires the same care, to achieve good results, that is given to other operations upon the uterus. The patient's bowels should be well cleared out, and the skin be put in good condition by the use of the bath. Anæsthesia is indispensable. Without it the vagina can not be thoroughly cleaned nor can the operation proper be thoroughly done. The vagina should be carefully scrubbed with soap and water, then irrigated and then douched with sublimate solution. The cervix is now exposed by means of the speculum, seized with a bullet forceps, gently and moderately dilated with Goodell's dilators, and then the entire canal of the uterus is curetted with the sharp curette. For general purposes the sharp curette of Sims is the most efficient instrument, but to curette the fundus the curette of Recamier-Roux will prove more useful. The entire surface should be gone over carefully and systematically, a given area being scraped until the curette *grates* on the muscular layer. The uterine canal should now be douched and dried; and then painted with pure carbolic acid or Churchill's tincture of iodine, which agents act as mild escharotics and as germicides. The

uterus is now packed lightly with gauze, which acts as a drain, and which, when removed the following day, brings away any *debris* which the douche may have left behind. Iodoform and boric acid in powder and iodoform gauze may be placed in the vagina, to be removed with the uterine pack. A sublimate douche should then be given on alternate days. The patient should have light diet, and the bowels should be kept open. She should remain in bed four days, and if at all uncomfortable, longer.

A most important rule, and one which should never be neglected, is to re-examine the patient just before operating. Under anæsthesia it is possible to explore the entire pelvis and to be sure that the endometritis is not complicated by diseased appendages.

In cases of well marked endometritis with granular involvement and purulent discharge, following the operation it will be best to make weekly applictions of Churchill's tincture of iodine to the endometrium, until a cure is effected, or until the effects of the dilatation have passed off. In the more chronic cases, usually of gonorrhœal origin, at times the disease persists in spite of the treatment. In these cases it is better to repeat the curetting rather than to continue the intrauterine applications for a long time. In my hands this method of treatment has given admirable results. Cases of uncomplicated endometritis have been cured or much improved, and in no case has salpingitis been produced. It is especially valuable in cases of fungoid endometritis and in cases with marked glandular involvement with purulent discharge.

General treatment both hygienic and medicinal is of the highest importance in the cure of endometritis. Each patient should be studied, proper hygienic directions given, and special indications be met by appropriate remedies. Especially, the bowels should be kept regular.

Vaginal medication, including painting the vault of the vagina and the cervix with Churchill's tincture of iodine, the use of the glycerin tampon, and the hot water douche, is always of value and in mild cases will effect a cure. This

treatment is particularly valuable when the endometritis is kept up by pelvic congestion or is due to subinvolution following labor or abortion.

This plan of treatment is always perfectly safe, and it is painless. All cases in which there is a reasonable doubt concerning the existence of salpingitis should be treated by this method until the doubt is cleared up. Tender masses lateral to the uterus are due at times to ovaritis and pelvic hyperæsthesia and not to salpingitis. Hence in many cases the practical man will use this treatment until the diagnosis is completely made. It can do no harm, and does great good especially in improving the pelvic circulation. This effect, is the rational explanation of its value in endometritis; by improving the circulation it aids the tissues in arresting the inflammatory process.

Formerly it was customary to treat endometritis by applications to the entire uterine canal, made without preliminary dilatation. The value of this method of treatment is very questionable. It is quite painful and induces at times severe uterine colic. When the cotton-wrapped applicator is used, most of the medicament is squeezed out of the cotton in passing the cervix, so that but little reaches the body of the uterus. The experience of those who have used it largely (for example Emmet, Thomas and Goodell) is that it is ineffectual, painful and dangerous. In former times peritonitis frequently followed this plan of treatment; but it is ineffectual highly probable that this was due to the fact that complicated cases were treated, and that the peritonitis was due to rupture of Fallopian tubes containing septic material. At times it was due to the forcible injection of the medicament through the tubes by the uterine syringe. I believe that the evidence upon this point is conclusive, and that applications to the endometrium without previous dilatation should be considered painful and futile.

As my experience grows I feel more and more convinced that the fewer applications that are made to the endometrium above the internal os in office practice the better it is for our patients. For several weeks after dilatation and

curetting and in cases having a very patulous uterine canal an exception can be made. But as soon as the effect of dilatation disappears it is best to recur to vaginal treatment, and if after a reasonable time recovery does not ensue it is better to repeat the curetting rather than to persist with the intra-uterine treatment.

In no disease are complications or extensions of the inflammation more common; and on the individual case complications must be recognized and the treatment varied to meet the indications. Pelvic congestion, subinvolution, metritis, displacement of the uterus, inflammation of the appendages, and peritonitis are the most common complications. The cause of the pelvic congestion must be sought for and appropriate treatment be instituted—as diet and laxatives for constipation, exercise for sluggish portal circulation, strychnia and digitalis for a feeble heart, and strychnia and small doses of ergot for atonic pelvic vessels. Subinvolution is best treated by the boroglyceride tampons and the hot douche locally, small doses of ergot, re-constructives and tonics internally, together with graduated exercise out of doors. For metritis the same treatment is indicated, and in addition the local abstraction of two to four ounces of blood per week. If the cervix is lacerated it should be repaired. Displacements of the uterus should be corrected. When the tubes, ovaries and peritoneum are involved, the inflammation of these structures should be considered the disease, and the endometritis be looked upon as the complication. In such cases all operations upon the uterus are contra-indicated. Pelvic local treatment should be restricted to vaginal applications. Whether the uterine appendages should be removed depends upon their condition. If adherent and persistingly painful in spite of treatment, or if the tubes be occluded and retention cysts have formed, or if pus be present, the appendages should be removed. If after recovery from the section the endometritis persists and causes distress, the uterus should be dilated, thoroughly curetted, and cauterized with saturated solution of chloride of zinc. As the functions of the uterus are in abeyance it is immaterial if its cavity becomes obliterated.

Clinical Notes.

Hints on the Treatment of Facial Paralysis.—We have to deal chiefly with rheumatic facial paralysis, that is, a paralysis which is the result of a neuritis or a perineuritis or of both, or we may have one due to syphilis or traumatism. Mild cases require little treatment and usually recover in a short time, but in the beginning of the attack it is often difficult to tell the mild from the severe form. The former will sometimes get well of itself, but it is best to use for any case a brief treatment of calomel and mild laxatives, followed by moderate doses of the salicylates either of sodium or cinchonidia, five to ten grains of the former, or two or three grains of the latter. A small blister, or counter irritation below the ear with mustard, should also be used. If the paralysis does not disappear under this treatment in a week or ten days a weak galvanic current should be applied to the affected muscles and nerve branches. For the severer cases of facial paralysis, which frequently are accompanied by pain below the ear and on the side of the face, mercury, salicylate of sodium, salol or phenacetin, or a combination of these drugs should at first be used. After a week or ten days it will be found advantageous to substitute the iodides or hydriodic acid, and in separate prescriptions a combination of sulphate of strychnia, $\frac{1}{30}$ of a grain, with salicylate of chinchonidia, two grains, three times daily. Leeching, blistering and counter irritation are demanded in the early stages; and quinine, malt and cod liver oil have their places in the later.

In using electricity for any form of facial paralysis the weakest current that will cause a visible contraction is sufficient; either anode or cathode may be used to the muscle or nerve periphery, but the best plan is at first to use the anode to the nape of the neck or under the ear, and the cathode to various points in the distribution of the muscles and nerve branches. It is best to begin with two or three milliamperes of current strength, and to increase until a

visible contraction is produced. Great care should be taken in applying the electrodes or removing them; this should not be done abruptly. The resistance should not be increased or cells introduced without consideration, as often a current previously weak or imperceptible will suddenly appear in full force and harm may be done in this way to the retina or by producing vertigo. Physicians should accustom themselves to examine the electrodes and cords carefully when no response can be obtained with a fair number of cells and an amount of resistance which afford a decided current. It is often the fault of these conductors, but it may be dependent upon some temporary disturbance in the battery—as a collection of hydrogen on the plates—which will right itself and the patient then get a severe shock. One of the electrodes can be used inside of the mouth with advantage in some cases. A clean electrode is of course here essential, one freshly covered with absorbent cotton.

The electrode placed at the nape of the neck or under the ear should be larger than that used for treating the face and each time it is used it should be freshly covered with absorbent cotton. The cathode should be a motor point electrode or at least one small enough for the individdual muscle to be treated with it, and this should also be freshly covered each time it is used. The treatment should not be too long, five minutes will commonly be sufficient; much harm can be done by over treating. In the first week or weeks the paralyzed muscles may respond and contract with a weaker current than is required by the muscles on the unaffected side, and the normal response, even in mild cases is often changed, so that the contraction produced by closing the circuit at the anode or positive pole will exceed that produced by doing the same at the cathode.

As the muscles begin to recover the response to galvanism begins to diminish and that to faradism to return, hardly noticeable at first but gradually increasing. If there is any tendency to contracture all electrical treatment is temporarily contra-indicated, for although this is not the cause of

the contracture it may tend to increase it. Very little can be done to relieve secondary contractures, although mechanical extension has been employed to the rigid muscles by means of a wooden ball in the cheek, and also faradism to the healthy antagonistic muscles and the catalytic action of the galvanic current to the contracted muscles. Such contractures usually indicate the occurrence of incurable degeneration. It is a mistake to go on using faradism week after week as is sometimes done by general practitioners in a case of facial paralysis in which the muscles refuse entirely to respond to this current. A strong faradic current will of course produce contraction in the masseter or other muscles supplied by the fifth nerve, which might mislead a very careless observer.

In facial paralysis due to syphilis, the lesion is often intracranial although peripheral and the auditory as well as the facial nerve is involved. Active specific treatment is here indicated—mercurial inunctions or corrosive sublimate injections should be used; or large doses of iodine.

M. Imogene Bassette.

Congenital Bony Occlusion of the Posterior Nares.—A farmer, twenty years of age, healthy and well formed in every other respect, came to the Polyclinic in May, 1891. He complained of total obstruction of the right nostril and partial obstruction of the left. He had been treated by a physician about two years previously, who had opened the left side with the galvano-cautery and had endeavored to do the same by the right but had failed. The patient seemed quite familiar with his own case and said that it was a congenital occlusion.

Examination by posterior rhinoscopy showed that the right naris was entirely closed by a wall of what proved, by subsequent digital examination, to be quite rigid bone, with a shallow central depression. The left naris was only covered at the upper and outer portion, the opening being the result of the former operation.

Anteriorly the right naris was very small, owing to a

deflection of the anterior portion of the septum to that side.

The occlusion was operated upon by using a gouge chisel through the anterior naris, not having a burr-drill small enough to pass through the narrowed space, using the finger of the other hand as a guide and protection posteriorly. Considerable difficulty was encountered in making the gouge bore its way through the bone which was dense, excepting a spot in the center. The partition was conical with apex anteriorly, allowing the chisel to slip to one side.

The wound was packed with lint for forty-eight hours and then with the galvano-cautery the mucous membrane at the margins was burnt away. Ten days later the septum was straightened, giving the man free breathing space.

As far as the writer is aware there have been only a few such cases reported, and some of these have been of membranous occlusion. The foregoing case is probably one of bilateral bony occlusion, as from the patient's statement it would appear that the left side had been closed also by thin bone.

A. W. WATSON.

Favorite Formulas.

For Chronic Pulmonary Disease.—This formula has been very frequently prescribed by me during the last year and a half with good effects in asthma, chronic bronchitis, chronic pneumonia and pulmonary consumption.

Strychniæ sulphat. . . . . grs. j.
Syr. acidi hydriodici
Syr. hypophosphii . . . . . aa ℥ ij.
M. Sig. One teaspoonful four times a day.

The hypophosphites and hydriodic acid are among the most useful tonics of the materia medica, and it is also a well known fact that strychnine possesses a special, stimulating influence on the pulmonary nerve supply. I had long been in the habit of using the alkaloid in respiratory

diseases, but I found that its combination with the other two ingredients resulted in a mutual enhancement of action. The good effects of strychnine can, however, only be obtained when it is given in large doses. Hence, I begin with $\frac{1}{32}$ of a grain and gradually increase it to $\frac{1}{20}$ or to $\frac{1}{15}$, or until it shows a tendency to manifest its physiological action.

THOMAS J. MAYS.

Ointment of Yellow Oxide of Mercury.—Among the most useful of topical agents in certain affections of the conjunctiva and cornea stands this well known preparation —the so-called Pagenstecher's ointment:

Hydrarg. oxid. flav.	gr. j.
Vaselini	ʒj.

The red oxide which is identical in chemical composition was formerly employed in place of the yellow, but, as first pointed out by Mr. B. Squire, of England, the yellow oxide is superior in consequence of its amorphous character, and the subsequent communication of Drs. Pagenstecher and Hoffman, of Weisbaden, in 1865, in the "Ophthalmic Review," gave the weight of experience to the theory. The red oxide, however carefully triturated, still shows crystalline particles under the microscope which, in contact with the delicate conjunctiva and cornea, cause more or less irritation. From this objection the yellow oxide is entirely exempt in that it is prepared by precipitation and is a perfectly impalpable powder.

The proportion of oxide in the ointment may vary somewhat; for use in the eye and not simply as an application to the edges of the lids, the above strength is sufficient and as much as can usually be tolerated without producing undue irritation; in marginal blepharitis, however, it may be used in the strength of three or four grains to the drachm. Previous to making the application, the scales or scabs should be removed and the remedy applied to the raw surface. This can be done by first soaking the surface with a warm alkaline lotion (five grains of bicarbonate of soda to an ounce of

water), which softens the hardened crusts and thus permits their easy removal.

But it is in phlyctenular disease of the conjunctiva and cornea that the ointment has its greatest value, and in these affections there is no better remedy that can be used by the patient or nurse. A small portion should be introduced into the conjunctival sac nightly, upon retiring.

The subjects of this special form of inflammation are usually children; as a rule, domestic remedies, with bandaging or even poulticing of the eyes will have been tried before the patient is brought to the physician. It will be found, moreover, that these patients are addicted to improper food and drink, with the exclusion of the eyes by a bandage or the keeping them in the house for intolerance of light.

Suitable food, avoidance of all bandages, fresh air and the daily application of the ointment will affect a change for the better in a very few days.

Mr. Jonathan Hutchinson is so impressed with its value in these affections that in an introductory address while President of the British Ophthalmological Society, he urges the Society to put the stamp of its official approval upon this remedy. He declared that of the thousands of children in England with phlyctenular ulcerations on the cornea, destined to leave disfiguring and incapacitating scars, three-fourths would be almost well in a fortnight by the use of this remedy alone, and that if a quack were to bring out this ointment, give it a striking name and advertise it sufficiently, he would be a public benefactor.

T. B. SCHNEIDEMAN.

Book Notices.

DISEASES OF THE EYE, A HANDBOOK OF OPHTHALMIC PRACTICE FOR STUDENTS AND PRACTITIONERS.—By G. E. DE SCHWEINITZ, M. D., Professor of Diseases of the Eye in the Philadelphia Polyclinic, Lecturer on Medical Ophthalmoscopy in the University of Pennsylvania; Ophthalmic Surgeon to the Philadelphia Hospital and to the Children's Hospital; Ophthalmologist to the Orthopædic Hospital and Infirmary for Nervous Diseases. 8vo., pp. 641, with 216 illustrations and 2 chromo-lithographic plates. Philadelphia, W. B. Saunders, 1892.

For the study of ophthalmology we have heretofore

depended mainly on reprints of English, and translations of German and French works. The appearance of the work before us heralds and hastens a change in this.

Within the last few years the American original contributions to ophthalmic literature have come to equal in importance those of any other country; and now the student will find the clearest and most interesting presentation of this branch of medicine, and the practitioner the most complete and easily accessible account of it, in an American book.

The emphasis of the book is distinctly on the practical side of its subject. The headings, symptoms, diagnosis, prognosis and treatment, face the reader in italics, capitals and heavy-faced type on almost every page. Careful arrangement, a condensed style, and cross-references have all been used to save space, so that in this volume one gets a very complete treatise. It is a striking characteristic of the work that it gives the valuable thoughts of recent ophthalmic literature on all points touched upon. It presents ophthalmic practice, not only clearly and completely, but fully up to date.

The more strictly optical part of the work is written by Dr. James Wallace. In its chapter on normal and abnormal refraction is a section on the adjustment of spectacles that is of especial value, because other works have utterly neglected this very important practical matter.

Many of the illustrations are new, and on looking over them one finds that the common and uncommon diseases of the eye are just as well illustrated by the cases occurring in Philadelphia as by those of London or Berlin.

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THE

PHILADELPHIA POLYCLINIC.

SEPTEMBER, 1892.

LABYRINTHINE VERTIGO, WITH ESPECIAL REFERENCE TO ITS DIAGNOSIS AND TREATMENT.[1]

By Charles K. Mills, M. D.,

PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM IN THE PHILADELPHIA POLYCLINIC; CLINICAL PROFESSOR OF NERVOUS DISEASES IN THE WOMAN'S MEDICAL COLLEGE; LECTURER ON MENTAL DISEASES IN THE UNIVERSITY OF PENNSYLVANIA; NEUROLOGIST TO THE PHILADELPHIA HOSPITAL.

As those of you who have been following the Polyclinic Service for Diseases of the Nervous System will recall, often a patient's chief complaint is of dizziness, giddiness, or vertigo; sometimes, but less frequently, it is of pitching, reeling, swaying or staggering. These terms, one or several of which may be chosen by the patient to describe what to him seems to be his most important symptom, may indicate the existence of any one of a variety of diseases which differ greatly in seat and character. A clear idea should always be had by the physician of that symptom or syndrome on which the patient lays the greatest stress; for while it is true that one symptom often fills the latter's field of vision, around it his description circling, and his hopes of relief centering, and although investigation may reveal to the competent practitioner other manifestations of equal or possibly greater importance for the determination of the nature of the illness; still in every case, a phenomenon which domi-

[1] A Clinical Lecture delivered at the Philadelphia Polyclinic Hospital.

nates the patient is of sufficient weight to call for the closest attention on the part of the doctor. To-day I will particularly consider vertigo, and especially that form of it known as labyrinthine vertigo or Menière's disease; but it will be necessary, in our study of this symptom to refer to some other affections of equilibration and locomotion, which simulate or counterfeit the disturbance to which the name vertigo is appropriately applied.

Our first patient, whom you now see for the third time, has a history which might be much extended, but which in its main features can be covered in a few words. He is 52 years old, and two months ago had a sudden attack of what was pronounced "congestion of the brain." His own account is that as he one day was walking along the street, suddenly a darkness came over him, and he felt as if he would fall, although he did not. He quickly recovered, but the next day, when about to start to his work he had another similar attack of vertigo and reeling, with nausea. He was put to bed and remained there three weeks suffering great pain in the head. He became totally deaf on the left side, and partially on the right, and complained of a great roaring in his left ear. Since getting around he walks as if afraid, and he says he feels dizzy and all the time as if he were going to fall. He comes to the clinic accompanied by his daughter who usually leads him as she would a child. He is not paralyzed, and has no impairment of common sensibility, or of any of its modifications. Knee-jerk is absent on the left, but present on the right, and muscle jerk is about normal on both sides. He suffers from fits of depression, often crying, which perhaps is not to be wondered at considering his serious and distressing affection; for few symptoms are more uncomfortable and alarming than those which give the impression of lost or disturbed equilibrium. Looking for causes we learn that four years ago he had a sun-stroke or heat-stroke; also that he has recently recovered from the grippe, that extraordinary epidemic which let loose in the community the contents of a Pandora's box

of nervous ailments. So far as can be learned, the sunstroke had not left him with any marked symptom of chronic intra-cranial disorder. His hearing was good before the seizure above described.

With the exception of lost knee-jerk on one side the symptoms would all seem clearly to point to the apparatus of hearing as the seat of the disease. We examined his hearing at the time of his first visit, and Prof. Randall has since made a more thorough examination, and reports total deafness on the right, and much reduction in hearing power on the left, with predominance of air conduction, the lesion being probably in both labyrinths, but more serious on the right.

This patient's symptoms and the history of his attacks, make up the picture of the affection properly designated as Menière's disease; I say "properly designated," because this name has been loosely given to diverse affections which have vertigo as a prominent symptom; but before going further in the discussion of this case, I will direct your attention to the general subject of vertigo that you may be better able to comprehend its significance in the present instance.

The terms vertigo, giddiness, and dizziness are commonly used interchangeably, or without any special distinction, by doctors and by patients; although of the three, "giddiness" and "dizziness" are perhaps more frequently employed inexactly in describing different and unrelated symptoms or conditions. Vertigo comes from *vertere* "to turn," and the word is best used to define a sense of disturbed equilibrium which may or may not be associated with actual movement of the patient or of objects external to him. It is not merely a sensation, but a sensation which indicates that a motor process has been disturbed.

When a case of vertigo, giddiness, dizziness, pitching or reeling presents itself, a number of affections must be excluded before the diagnosis of labyrinthine vertigo can be made. As affections of the auditory apparatus are so often found in patients suffering from other pathological

states, even the presence of hardness of hearing or deafness and tinnitus in a case of vertigo should not lead us at once to this diagnosis. No classification can be made to include every form of vertigo not directly the result of labyrinthine disease, but the most important varieties are: (1) Vertigo dependent upon intra-cranial disease, chiefly tumor and pachymeningitis, but not including under this general head the disturbances of equilibrium which arise from disease of the cerebellum or corpora quadregemina. The three most frequent general symptoms of intra-cranial tumor are headache, nausea or vomiting, and vertigo, and these are commonly dependent upon the same mechanism. Most cases of brain tumor originate in the membranes of this viscus; the trigeminal nerve has a wide distribution in the dura, and intense localized irritation of its branches gives rise directly to pain and indirectly to nausea, vomiting and vertigo. The deep nucleus of this nerve is closely related in position to the nuclei both of the pneumogastric and the auditory nerves, and the reflexion or irradiation of powerful impressions from the former to the latter will cause vomiting and vertigo. (2) Ocular vertigo which may spring from several conditions, but is most commonly due to serious disorders of refraction, to paresis or spasm of the ocular muscles, or to excessive retinal irritation. The scope of the present lecture will not permit me to do more than refer to this form of vertigo but, in any case the cause of which is obscure, the eye should be carefully considered and its defects corrected. Partial tenotomies and exact corrections or re-corrections with glasses have been found efficient particularly in some of the milder but none the less annoying vertigoes. (3) Vertigo due to disease of blood vessels, as, arterio-sclerosis, from alcohol, syphilis, gout, old age, etc. The diagnosis of these cases is to be made by excluding carefully ear, brain, eye, severe local disease anywhere, toxemias, etc., but chiefly by a careful examination for arterial, or arterio-capillary, fibrosis, and the accompanying conditions of the heart, kidneys, liver, and other organs. Reedy, resisting arteries,

excessive arcus-senilis, changes in the pulse rate, reduplicated, or clanging cardiac sounds, and other well known phenomena will be present. (4) Vertigo which has its source in the state of the blood, under which general head are included those forms of the affection arising from anemia or hyperemia, lithemia, and a large variety of toxemias including those occurring in connection with infectious diseases, and from the direct action of drugs and poisons. (5) Vertigo dependent upon intense irritation reflected to the labyrinth or brain from more or less distant regions of the body—commonly classed as nasal, pharyngeal, laryngeal, gastric, intestinal, hepatic, uterine, ovarian, etc., according to the organ which seems to be its fountain head. The reflex origin of these vertigoes is often doubtful, they are more probably due to a toxic state of the blood, which is produced in various ways.

Certain forms of vertigo or pseudo-vertigo have been described as mental or psychical, but these should in the majority of cases be considered rather as phobias or abulias, that is, as monomanias. The vertigo attributed to neurasthenia and hysteria is probably not deserving of erection into a special class, as it can usually be explained better by a consideration of ocular defects, or of some changes in the blood, by reflex irritation, by psychical influence, by labyrinthine complications, or by some other more tangible cause than the vague influence of a neurasthenic or hysterical state. In like manner, the so-called essential vertigo which has been described by Ramskill, Weir Mitchell and others, recedes more and more as knowledge increases. The vertigoes with nausea and vomiting, which so frequently arise during journeys by sea or rail, are to be arranged under one or several forms already described, probably they are commonly dependent upon direct or indirect disturbances of the contents of the labyrinth. This brief survey shows the general importance and complexity of the subject of vertigo, and a rapid but careful consideration should be given to these causes of giddiness in any case.

Labyrinthine vertigo, from which I believe our patient is suffering, is sometimes spoken of as aural and sometimes as auditory vertigo, but neither of these terms is exact, or altogether to be commended. The semi-circular canals by some are regarded as not strictly speaking a part of the auditory apparatus, and the auditory nerve as not altogether an organ of hearing, but as subdivided into two parts, one of which distributed to the cochlea has to do entirely with this function, and the other terminating in the semi-circular canals concerned with the preservation of equilibrium, is, in other words, the organ of the sense of space. A glance at the exposed interior of the osseous labyrinth conveys the impression that the vestibule separates important organs lodged in the cochlea and semi-circular canals which may have distinct but related functions. Many physiological facts support this view which is, also, strongly disputed. Hearing is unquestionably affected in the vast majority of cases of Menière's disease, but a few have been put on record, as one by Ferrier, in which all the phenomena of Menière's disease except deafness were present, the sense of hearing so far as related to aerial vibrations having been entirely unimpaired.

While aural vertigo usually means labyrinthine vertigo, the labyrinth is not always the seat of the primary lesion, and in some cases no lesion of the latter is present, the irritation being reflected to it, or inflammation extending to it, from other parts of the ear. Sometimes the labyrinthine fluid is shut in or abnormally compressed. It is best therefore to consider aural vertigo under the three forms of external ear vertigo, middle ear vertigo, and internal ear vertigo, according as the irritation which produces the symptom is in either of these portions of the ear; and following this classification the term Menière's disease, if retained at all, should be used to indicate vertigo due to disease of the internal auditory apparatus. Menière's dictum was that when tinnitus of a variable nature, intense vertigo, uncertainty of gait, turnings to the right or left and falling, sometimes attended with nausea, vomiting, and syncope are

present, total deafness often eventually ensuing, the lesion which is the cause of these disorders is in the semi-circular canals.

As to the etiology of the present case we cannot be very positive. The patient has a history of heat-stroke and of an infectious disease, both of which are well known to sometimes initiate forms of meningitis, and it is not improbable also, labyrinthine otitis. I have now under my care a private patient—and I have had other similar cases both in hospital and private practice—who presents in a mild form Menière's symptoms, with general nervous and mental depression. He was overcome with heat while working in his office on a hot summer day, the attack coming on with faintness or dizziness; he was so weak and giddy that for two weeks he was confined to the house, and ever since, now more than a year, he has been much troubled with a sense of vertigo which is not excessive but seldom leaves him. He usually feels as if going to the right. Hearing is defective in both ears, but more markedly so on the right than on the left, and careful examination shows that the defect is due to internal ear disease. His pulse is compressible and his general condition one of neurasthenia, but no definite lesions can be determined except probably a low grade of labyrinthine inflammation.

It is not always a mistake to speak of cases such as the one before us as apoplexies; although the seat of the apoplexy is not the brain or its membranes, but some portion of the labyrinth. The patient may have bilateral labyrinthine hemorrhages, with secondary inflammation.

Several times I have had under my care, and in two or three instances have examined for medico-legal purposes in suits for damages, patients suffering from unilateral or bilateral deafness after serious cranial concussion, cases in which no evidences of fracture, or of disease of the external or middle ear could be detected on the most careful investigation. It is highly probable that in some of these cases extravasations take place in one or both labyrinths as the result of the general concussion of the skull and its contents.

Experiments have shown that a colored fluid injected into the space of the arachnoid will pass through the aqueduct of the cochlea into the scala tympani; and doubtless the cerebro-spinal fluid and that of the labyrinth are continuous, a fact which gives the clue to the mechanism by which labyrinthine extravasations, with or without the Menière group of symptoms, may occur from cranial traumatism. The displaced cerebro-spinal fluid, surging in all directions, causes the greatest damage in those localities in which the efforts toward a restoration of its equilibrium will be most interfered with, where the chambers containing it communicate with each other by small canals or apertures.

Strictly speaking, disease of the cerebellum does not produce vertigo. The effect properly to be referred to cerebellar disease is a reeling or irregular gait, which is usually described as titubation, a word derived from the Latin word meaning to stagger or totter. True vertigo is sometimes an accompaniment of cerebellar disease, but is in these cases due to the involvement of other parts, as the brain membranes or the cranial nerves.

The unilateral absence of knee-jerk in our patient, is the only sign which would incline us temporarily to the diagnosis of cerebellar disease. It is known to experienced neurologists that occasionally in lesions of the cerebellum, particularly tumor, the knee-jerk cannot be obtained; but it is not improbable that serious irritative lesion of both labyrinths might so impress the centres of equilibrium in the cerebellum, that the latter would secondarily act to inhibit the spinal centres, in the same manner that they are supposed sometimes to do when they are the site of the primary lesion.

In rare cases peculiar disorders of vision associated with disturbed movements of the eyes and of the body in general will point to quadrigeminal disease.

Various symptoms attributable to affections of the heart, are sometimes incorrectly and sometimes correctly, called vertigoes. Usually the symptoms are syncope or fainting,

or a temporary lapse or vacuity associated with a want of rhythm or tone in the action of the heart or its valves.

An otitis labyrinthica, described by Voltolini, closely resembles meningitis, and is indeed sometimes associated with or secondary to meningeal or endymial inflammation. The disease is abrupt in onset coming on with fever and excitement, and sometimes with vomiting; unconsciousness, partial or complete, ensuing early. In two to four days consciousness reappears, and the children recover their senses rapidly, but when they first attempt to walk they are found to stagger. This gait gradually disappears, but incurable deafness is left.

To determine that a vertigo is dependent upon labyrinthine disease, it is necessary of course to locate a lesion in the labyrinth, and every practitioner, except in unusually difficult cases, should be able to do this by a rapid and systematic examination of the ear.

The prognosis of labyrinthine vertigo is variable. A few cases, particularly those which are due to recent inflammation, or to small extravasations, can be practically cured. Some striking successes have been obtained in syphilitic subjects by the early and active use of mercury and the iodides. Partial successes, as great improvement or relief from the vertigo and tinnitus, without restoration of hearing, are sometimes obtained.

Whatever measures of treatment are decided upon, the practitioner should give to them a thorough and persistent trial; a disease with such serious and positive lesions is not to be relieved by dilletante procedures.

The indications for treatment are various, and differ in different cases. The local conditions present must be thoroughly considered. If they point to chronic inflammatory disease, not only of the labyrinth but also, as often is the case, of the external or middle ear, and particularly the latter, the treatment should keep this fact permanently in view. Eustachian inflation and catheterization, and any of the approved methods of treating either otitis externa or otitis media should be adopted, in addition to measures

intended directly to reach the labyrinth. One procedure, which has met with striking success in the hands of Sexton, Duane, MacCuen Smith and others, is that of removal of the incus and malleus, with also as far as possible the products of chronic inflammation by a completely aseptic operation. These cases are not instances of pure labyrinthine disease, the latter being usually a secondary complication, although in rare cases the inflammatory disease may have extended from within outwards. In the journal formerly published by the Philadelphia Polyclinic, Burnett reported a cure in a case of aural vertigo and tinnitus by excision of the membrana tympani and malleus.

Gruber has recorded the case of a soldier who suffered from Menière's disease, but died from typhus fever, the autopsy showing much thickening of the membranous labyrinth which contained abundant sanguineous fluid; a few similar autopsies are on record; and as syphilis is a somewhat frequent cause of Menière's syndrome, and as even when it is not a part of the history, the disease may be hemorrhagic, inflammatory or exudative, remedies like the iodides and mercury are often distinctiy indicated, and sometimes their administration is followed with great success. Our patient has already much improved under large doses of iodide of sodium.

When the rheumatic or gouty diathesis is present, cathartics, alkalies, the salicylic compounds, colchicum and lithia salts should be given a thorough trial.

Charcot has strongly advocated the use of quinine, giving the drug in large doses to the point of marked cinchonism. Ten, fifteen or twenty grains should be given for several days. At first, as would be expected, the symptoms, or at least one of them, tinnitus, is usually increased. The drug should be discontinued entirely after full cinchonism has been produced.

The administration of quinine in such cases is occasionally, but I believe very rarely, attended with danger. Gruber, for instance, records that in a vigorous woman who had for several years suffered from chronic middle ear

catarrh, and experienced a severe attack of Menière's symptoms, quinine in large doses caused acute glaucoma.

In connection with the use of large doses of quinine, it is worth while to remember that we have a well known but not very common form of vertigo which is distinctly malarial in origin, the toxic agent probably acting upon the nervous apparatus of the labyrinth, or upon the encephalic centres of equilibration.

The salicylic compounds, and particularly the salicylate of sodium, have been used in labyrinthine vertigo for a reason similar to that which has led to the use of quinine. Gowers believes that the effect of quinine is not so satisfactory as that of the salicylate of sodium, and also that the best effects are obtained by giving it in moderate doses, as of five grains three times a day.

Although the disease is either primarily or secondarily labyrinthine, when the indications for treatment are being traversed in the mind of the physician, the importance of the central condition—of the state of induced instability of the cerebellar or other centres of equilibration—should not be overlooked. More rapid advance in the relief of the annoying symptoms is sometimes brought about by combining with the iodides, or other anti-plastic drugs, remedies which are efficient in the reduction of cortical or ganglionic excitability, first among which stand the bromides, which should be given in decided doses as from twenty to thirty grains; or hydrobromic acid may be used as has been advocated, instead of the bromides, but it needs to be given in very large doses, and probably has no real advantage over the bromides. Arsenic may be combined with the bromides, both to prevent bromism, and for its roborant effect on the nervous system. Belladonna, aconite, antifebrin, antipyrin and phenacetin may also be tried for their effects on the centres and the circulation.

A variety of remedies have been suggested by good authorities for the relief of the annoying vertigo and tinnitus of Menière's disease, most of which are only of temporary benefit, and most of which also seem to have no clear

scientific reason for their use. Gruber believes that he has obtained much benefit from the internal use of arnica which he prescribes alone or with nux vomica, giving ten parts of the tincture of arnica to one of nux vomica, and administering six drops of this on sugar, twice a day, increasing the dose by one drop every five days until it reaches ten drops; and if this treatment results in benefit, it should be continued for some weeks after the disappearance of the symptoms. The use of strychnia and nux vomica in large doses has also many supporters.

A method of treatment made use of by Hamilton in one case is suggestive, and indicates a possible line of treatment. The patient was in the habit of asking his wife to turn him the other way when the attacks occurred, and as a portion of his treatment the doctor had him at intervals to practice turning in an opposite direction to that caused by the disease. This procedure and other methods of balancing gymnastics, may prove of service in some cases.

Local treatment has sometimes a sensible basis for its use and great benefit has occasionally followed such measures as counter-irritation or leeching behind or below the ears. Charcot has recommended the application of the cautery over the mastoid, three or four times a week.

PELVIC INFLAMMATIONS.

By J. M. Baldy, M. D.,

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Gentlemen:—There is no more practical subject which can be brought to your attention than that of pelvic inflammatory diseases. To you, as general practitioners of medicine, come these sufferers in the very incipiency of their troubles, and it rests in great measure with you whether or not they are subsequently to fall into the hands of a specialist for a surgical operation.

The disease, as has been frequently told you, begins either as a gonorrhœa or a post-puerperal sepsis. In either case

it becomes your duty to attack the original disease with fearless vigor: most emphatically not to handle the case on the expectant plan, nor merely to prescribe medicines. In the beginning the disease is a local one and must be treated locally. The gonorrhœa must be attacked in the vagina or if it has, as is most likely, extended into the uterus, this organ must be subjected to prompt and careful attention. In the case of puerperal sepsis the placental site is, as a rule, the first to show manifestations of disease and shortly the whole uterine cavity becomes involved. In either case it is but one more step for the Fallopian tubes to become affected and then the disease has well nigh passed beyond control, or even if finally controlled, sufficient damage has been done to render the woman sterile and probably an invalid for life. It is at this point that prophylaxis of pelvic inflammatory diseases is possible. Let us for a moment consider several illustrative cases.

The patient before you has a fairly good history of venereal infection. A short time since she had illicit intercourse and for a week past has been having an increased leucorrhœal discharge—a discharge which has changed from a catarrhal to a muco-purulent one in character. She has not noticed a great amount of swelling of the vulva but the parts itch and burn and she suffers from frequent micturition. On examining the vagina you will notice the yellowish color of the discharges bathing it and the injected appearance of the vaginal mucous membrane. The cervix, about the os, as you perceive, is red, and by digital examination the uterus is found to be enlarged and heavy; a muco-purulent discharge is to be seen flowing from the cervical canal. To a certainty the uterine cavity is already involved and as proof that the appendages are threatened if not actually diseased, the woman complains that for the past few days she has had pain in the iliac regions.

Before speaking of the treatment of this case allow me to refer to a patient seen by me a few days since. The woman had an abortion four or five days before. When seen she

had an elevated temperature (102°), a quick pulse (120) and fetid discharges. An examination revealed a patulous os, and an enlarged heavy uterus. The treatment in that case was precisely the same as you will see in the one before you, when she enters the hospital. When the os is not sufficiently patulous for a curette to pass, your dilators should be brought into play and a free dilatation made, after which the uterus should be most thoroughly curetted. After having scraped the endometrium thoroughly, wash away all debris with a stream of bichloride solution (1–2000) and make an application of Churchill's tincture of iodine or pure carbolic acid to the whole cavity of the uterus. If thorough drainage be now provided, the patient will be cured in very many cases and a pelvic inflammation headed off.

If a patient suffering from this condition be neglected she will almost inevitably acquire tubal and ovarian disease and probably the whole pelvis will become involved by the infection passing out through the fimbriated ends of the Fallopian tubes. Under these circumstances there occur a variety of pathological conditions of the pelvis and lower abdomen. Pus may or may not form, and on this hinges the possible future treatment. If pus is formed and retained it must always be evacuated. No general or local treatment will avail, and by useless delay the patient's life is endangered. The treatment should always be by abdominal section and removal, not only of the pus but of the sac which contains it as well. There have been other methods advocated of dealing with the pus, but it is hardly worth while to waste your time in considering them. Abdominal section is the only rational, scientific and safe method of procedure. As a rule the pus will be found confined in the Fallopian tubes and these must be removed.

A case operated upon in the hospital a short time since will, however, illustrate a class of pus cases where the operation resolves itself into simply opening an abscess and draining its cavity. The patient had a history of neglected post-puerperal trouble following a miscarriage, since which

time she had been gradually becoming worse, until at the time of the operation a distinct rounded tumor could be felt through the abdominal walls half way to the umbilicus. After opening the abdominal cavity the walls of this tumor were found to be made up of loops of intestine and omentum adherent together. A finger quickly found its way between several of these adherent coils of gut and pus gushed forth. The abscess was quickly emptied and washed out. Investigation disclosed that the uterine appendages did not contain pus, but that they were closely adherent to the intestinal mass. The general condition of the woman was such as to preclude any further manipulation. A drainage tube was placed in the pelvis and the patient put to bed to make a tedious, but good recovery. Had an attempt been made in such a case to make a complete operation by removing the appendages and freeing intestinal adhesions, the patient would most probably have died: even had she escaped, the adhesions would have formed again.

A great number of patients come to us suffering from pelvic inflammatory disease where there is no pus present. Pain is their principal complaint and they come for its relief. The advice to be given to such patients will depend in part on the patient herself and in part on the pathological condition present. There are several varieties of this class. The patient just brought before you for examination illustrates one phase of this question both as to pathology and treatment; and we have a second patient whom you shall see in a few moments, who will illustrate a second phase of the subject.

The first patient has suffered pain in her lower abdomen ever since her second child was born some three years ago. She has some leucorrhœal discharge, not much more than formerly. Defecation and micturition are fairly normal. On examining the patient you will find that her uterus is only fairly movable; that on the left side the tube and ovary can be felt enlarged and thickened. The right tube and ovary are not so much affected. This patient has

no history of an attack of inflammation, since her first attack three years ago. Her pain is by no means unbearable, in fact it is no worse than some women suffer at each menstrual flow without especial complaint. Her temperature and pulse are normal and she has no sign of sepsis, such as sweating, chills and creeps, emaciation, loss of appetite, restless nights, etc. She suffers simply from a pain which she can bear well enough if she makes up her mind to it; a pain which in no way affects her general health. Her tubes and ovaries are undoubtedly thickened and diseased, the fimbriated ends are occluded and she is sterile for all time to come: adhesions are undoubtedly present.

In spite of the undoubted pathological condition she had better bear the ills she has, than risk incurring greater ones by an operation and you will do well to bear in mind that this is the class of cases who are often just as bad after an operation as before. Even if nothing could be done by medicinal treatment to relieve this woman, yet I would advise her to let well enough alone. In these cases much may be done by treatment if properly and persistently carried out. This woman has no endometrial disease at present, else that would be the first condition of attack. To begin with, large (4 quarts) hot water douches (110°) will be ordered twice daily. Three times a week she will return to the clinic to have an application of ichthyol (50% glycerin solution) made to the cervix and vaginal vault; this may possibly be alternated after a while by iodine. Tampons (wool) will be adjusted each time she has an application of ichthyol or iodine. Her diet will be regulated and her bowels kept soluble. In the course of a few months the pain will be relieved to a very considerable extent and possibly it will be difficult to detect the thickened and inflamed tube. Often great masses of pelvic exudates about diseased appendages will disappear under such treatment, much in the same manner as they do under the use of electricity; this is the more apt to occur if the exudates are recent and rest in bed can be obtained. At times cases

of this kind will resist all treatment and then it is time enough to resort to an abdominal section, if the pain is sufficiently great to make the woman miserable.

This second patient has a somewhat different appearance than the last, with much the same history. Here the appendages are much more thickened and adherent; in other words there have been more inflammatory deposits in and about the tubes and ovaries, the adhesions are more intimate and the parts extremely tender on manipulation. The woman's general health is affected; she has lost flesh steadily during the past two years. Several attacks of inflammation have taken place since the original disease four years ago. She has a weak pulse, no appetite, does not rest well at night and suffers continual pain. Her menstruation is too frequent and profuse. She is sterile.

Here there will be no hesitation in advising an abdominal section and a complete removal of the appendages. Even if a perfect cure is not accomplished (and one cannot always be expected) the woman will be so well comparatively, that she will be well repaid for all the risks she takes. If, however, for reasons of her own she should refuse our advice to submit to an operation, there is no reason even here, until we have tried and failed, to despair of giving relief and in some cases a cure. I have seen some few patients like the present one, whom I was inclined to condemn to the knife, make remarkably good cures.

This is not so likely to occur in old chronic cases as in comparatively subacute ones. If an operation is not accepted, give the treatment outlined for our last patient a careful and painstaking trial and you will often be rewarded by a success more or less great.

Before leaving the subject there is one other variety of this class of cases to which it will be profitable to call your attention. There is in the wards of the hospital a patient from the country who has been confined to her bed for twenty weeks with pelvic inflammation following a criminal abortion. Whether or not there was pus present originally

it is impossible to say. When she entered the hospital she came for an operation, but her condition after the railroad journey, was so bad that it was postponed. Her pulse was very weak and rapid (130), her temperature was elevated and she was much exhausted. The roof of the pelvis was board-like and hard to the touch, the uterus immobile and the parts very tender. An abdominal mass arose half way to the umbilicus, rounded off equally to both sides. She could retain no food. So weak was she that we dared not give her purgatives in preparation for an operation. The following four days were devoted to building her up and to-day she hardly looks like the same woman. She has had careful rectal and stomach feeding; whiskey by the mouth, rectum and hypodermically, the first bath (sponge) since she has been sick, absolute rest in bed, good nights' rest, secured when necessary by drugs. Her temperature is normal, her pulse much better and color has begun to appear in her face. She is now able to retain food in her stomach. During her stay in the hospital she has been carefully watched for signs of sepsis—no chills or creeps, no rise of temperature, no sweating,—nor anything else which would indicate this condition has been observed.

At the time of her abortion the septic poison extended from the uterus into the tubes, thence into the pelvis and from there to the overlying intestines and omentum, until the whole pelvis and lower part of the abdomen became involved in one mass of adherent viscera; fortunately pus did not form. The present condition is one of extensive adhesions and starvation. Her friends were told this morning that nothing could be promised from an operation—that the separation of adhesions would be extensive and probably the patient would die from the shock. They have decided against an operation and will take her home. It is my belief that if this woman is carefully nursed, her diet and hygiene carefully regulated, her bodily functions kept regular that she will have a better chance for ultimate recovery than she would have by an operation. Of course she will never be perfectly well, but neither would she be if

she submitted to the operation and recovered. Her disease has caused such organic changes that by no method of treatment could we hope to make a cure. Relief is all that is to be looked for in her case and similar cases, and nature properly helped will be more likely to accomplish this than the surgeon.

In conclusion let me impress on you the fact that abdominal section is not the only treatment for pelvic inflammations and their results. There are often reasons why a patient will not accept an operation and although your judgment may lead you to think it necessary, yet you need not despair of obtaining great relief often and a cure sometimes, provided there be no pus present. What is absolutely necessary, both on the part of yourself and the patient, is patience, combined with a fair and skillful trial of the available methods.

WHAT CAN BE DONE FOR INCIPIENT CATARACT.

By Edward Jackson, M. D.,

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Gentlemen:—To one case of cataract that requires an operation you will see ten that do not; so that in the total management of cataract cases the other matters are really of much greater importance, and the operative treatment of relatively less importance, than you might be inclined to think from what is said or written about them. I hope that for your own sakes, for the sake of our profession and for the sake of your patients you will not fall into the too common error of leaving your cataract patients to time and their own dismal forebodings until the possible time for an operation. If the medical profession refused to treat all maladies that it could not radically cure, both its present usefulness and its future chance of development would be greatly narrowed. There is really no justification for making cataract an exception to the rule that the physician

should do all he can for his patient though radical cure be not possible.

Diagnosis, accurate and complete as circumstances allow, is the first service to be rendered. Do not let the patient suppose he is suffering from cataract when no cataract is present. Do not let the word "cataract" have to bear the odium of other and incurable diseases. Before the introduction of the ophthalmoscope the diagnosis of cataract was fraught with difficulties and uncertainties that baffled the most skilful specialists. And for the practitioner who does not use the ophthalmoscope the diagnosis of cataract is now as difficult as ever. There are many cases in which you cannot by simple inspection or oblique illumination determine whether there is a lens clear enough to allow full normal vision, or a cataract ready for extraction. With the ophthalmoscope the diagnosis is simple and easy; and every general practitioner of medicine ought to be sufficiently acquainted with the use of the ophthalmoscope to recognize the presence of opacities in the lens or other dioptric media of the eye.

For this purpose you do not require a Harlan's or Risley's, or Jackson's ophthalmoscope or even the old Liebreich instrument. Any mirror with a slight hole in it, a fragment of looking-glass with a little of the silvering scratched away, will answer. With this in a darkened room throw the light from a lamp placed behind the patient's head into his eye; having him look not at the mirror but in other directions, to secure partial dilatation of the pupil, or the pupil may be dilated by a drop of cocainé solution placed in the eye from thirty minutes to an hour before. Placing your eye at the sight-hole and a foot or so from the patient's eye, you will see when the light is properly directed, a red glare occupying the area of the pupil, and against this red background any opacity will stand out as a distinct cloud or sharp black line or dot. These appearances can usually be readily and distinctly recognized at the first attempt to use this method of diagnosis; but to get certainty with it, you must become familiar with the normal reflex of the pupil

by examining it in several normal eyes choosing especially persons of different complexions, including negroes in whom the reflex is comparatively feeble and often can scarcely be called red.

When the presence of an opacity is thus recognized it remains to determine if it is in the lens or elsewhere. To understand how this is done hold up your two forefingers in a line with your eye, one at arm's-length, the other six inches closer. Then holding the fingers still, move your head from side to side, and watch the tips of the fingers which will appear to move past each other. The finger farthest from the eye will always appear to move in the same direction as your eye moves, while the finger nearer the eye appears to move in the opposite direction. The same kind of relative movement within the eye is what we use to judge of the position of opacities seen by the ophthalmoscope. Here we have the margin of the pupil for a prominent object to which we can refer the movements and positions of other objects. If on moving the head from side to side the black speck caused by an opacity seems to move in the same direction as the observer's eye across the pupil the opacity is known to be back of the pupil: while if it moves in the opposite direction it must be in front of the pupil, as a foreign body in the cornea. The distance of the opacity back of the pupil can be judged by the rapidity of its apparent motion, which is greater the further back it is. Then again opacities in the lens are fixed, while those in the vitreous float about to a greater or less extent independently of any movement of the observer's eye. After you have become somewhat accustomed to the appearances of such opacities their shape will be a great help in deciding if they are located in the lens or not. Of course if the cataract is far enough advanced to entirely shut off the red reflex of the pupil, these appearances of black specks or lines or areas against a red ground is not presented. But the very absence of the reflex from the fundus of the eye reveals the opacity of some of the media, and careful inspection will generally enable you to locate it.

In view of the extreme simplicity and ease of the method of recognizing or excluding the presence of cataract, it seems almost unpardonable that the diagnosis of cataract should be reached when no lens opacity was present. Yet by neglecting this method of observation with the ophthalmoscope mirror, I have known excellent observers in most respects to fall into just that error. But even when lens opacity is present the mere recognition of it may be of little practical use to the patient. Very marked lens opacity may be present and not cause any impairment of vision, and this may continue for years. And if the adjustment of glasses to correct ametropia gives the patient relief from the imperfection of vision, there is no practical importance in the existence of the lens opacity, except as it bears upon prognosis. Again there may be cataract present, and the vision may be impaired, but the impairment may be due to atrophy of the optic nerve or choroiditis, or detachment of the retina, or some other incurable condition. In which case the cataract is again unimportant because its removal will leave the vision unimproved, and improvement of vision is generally the only thing to be hoped from the extraction of cataract. Hence the simple recognition of the presence of the lens opacity, though essentially the first step in the diagnosis, is only the first step; and for a complete diagnosis all the other pathological conditions present must be recognized and carefully worked out, and the relative importance of each as to the interference with vision determined.

The older works on ophthalmology assigned much space and relative importance to the differential diagnosis of cataract from glaucoma; and while the test with the ophthalmoscopic mirror has greatly simplified the matter it still remains one of great practical importance. A very large proportion of the cases of glaucoma that one sees, have been told by some physician that they were suffering from cataract, and they generally come to the specialist prepared to undergo a cataract extraction for the relief of their blindness. It is no pleasant duty to tell these patients that an

operation can now do nothing to restore their sight, although the proper operation done in the earlier stage of their disease might have preserved their vision. Usually, if the case is not painful or inflamed, the mirror test will show the absence of lens opacity, while if there be some opacity of the media with pain or evidence of inflammation something beside cataract is present, and the expectant plan of management, which though usually not the best is often followed in cataract, is in such a case entirely inappropriate.

Prognosis.—In laying before your patient such an account of his case as he will expect, and you can rightfully give, you must bear in mind that the term cataract carries a whole prognosis in itself; and often to the imperfectly informed or misinformed layman a very incorrect prognosis, the false impression of which it may be difficult or impossible to remove by subsequent explanations. You must remember, that in the popular mind not only is the name cataract associated with the years of partial or complete blindness, and the most formidable operation of ophthalmic surgery, and the failures and partial successes that legitimately belong to it. But almost any case of incurable blindness in any elderly person is apt to be known among his friends as "cataract or something like cataract". "Cataract" being the only technical term that they have at command to designate a whole group of diseases.

With apprehensive patients, therefore, it is often best not to mention the word cataract unless forced to by some direct question. And even then it is often well to speak of the conditon as one that may develop into cataract if the patient lives long enough, or continues to use the eyes excessively, or is in poor health. For most people associate with the term the mature or nearly mature condition, or at least a condition that will certainly pass in the not very distant future into one of complete lens opacity. And with a majority of the cases of incipient cataract that we meet no such increase of the opacity ever does occur. In many cases, however, after explaining the condition present as one of opacity of the crystalline lens and what its probable

course and ultimate result will be, it is well to give the patient a clear understanding of the relation of this to cataract as he understands the term.

In prognosis the prudent physician is usually "guarded," that is, non-committal as to the future course of disease, and in cataract there is especial need for caution. There are a few cases in which the opacity begins and steadily increases until in a few weeks or months it has become complete. In a larger class of cases the increase of opacity is tolerably constant but very slow. But in by far the largest class the progress of the case is for a time well marked, then partially or entirely interrupted, and such interruptions may be of any length from a few days to many years. It is the liability of the process to such interruptions that makes a definite prognosis usually impossible.

Generally cases in which there is diffuse clouding of the lens involving the cortex to any considerable extent are those in which there has been recent rapid progress, which progress may continue or be interrupted for any length of time. Where there is a diffuse and almost uniform clouding confined to the nucleus, the opacity is likely to very slowly increase. Cases in which there are sharply defined opaque lines or masses of opacity in the cortex of the lens, with the intervening lens substance clear, are usually stationary, or nearly so. But these are only the usual, not the certain indications.

The prognosis ought in most cases to be as favorable, or hopeful as it truthfully can. To most persons the diagnosis carries unduly gloomy foreboding, and dismay. This must be counteracted before the patient can attain a just view of his prospects; and any undue depression is to be especially avoided as it tends to impair the patient's nutrition and so hastens the course of the disease. It may safely be urged that in a large majority of cases of cataract useful vision is retained to the close of life; that in no case does cataract cause entire loss of light perception; that as soon as all useful vision is lost relief can be sought in operation;

that the operation is neither painful or dangerous and that in nine cases out of ten it will restore useful vision.

Treatment.—The view that for incipient cataract nothing can be done is certainly incorrect. In avoiding and disclaiming the pretensions of charalatans the profession has failed to see all that may be done for the relief of this condition. It is clearly established that a considerable number of cataracts remain stationary, often for many years. The conditions that tend to produce opacity in the lens are certainly to some extent amenable to the therapeutic and hygienic measures at our command. Whether the opacity that has already developed ever tends to diminish is perhaps an open question, but my own belief is that opacities of certain kinds do show that tendency. But in any case, one may with very good reason hope to check the process where it is, and prevent further deterioration of vision in a considerable proportion of cases, though not in all.

Then again eyes in which cataract is progressing rapidly are usually affected with opacity of the vitreous; or, as urged by Prof. Risley, choroidal irritation or inflammation which are known to be to some extent amenable to treatment. And the removal of these conditions quite often brings about a notable improvement in vision. In the main the treatment is to be directed to improving the choroidal nutrition since it is through the choroid that the vitreous and lens drew their nutritive supply. The first step in this direction is the avoidance of eye-strain, by use of the proper glasses, and by enforced systematic abstinence from close eye-work as reading. This may involve a radical change in the habits and pursuits of the patient; but with the hope that such a change may prevent the occurrence of cataract this change may often be made. After the avoidance of eye-strain comes protection of the eyes from exposure to excess of light or heat; and beyond this our dependence must mainly be on what will influence favorably the general nutrition. The cure of dyspepsia is of the first importance. The favoring of increased excretion is needful in a large proportion of old people. Freedom from worry

and abundant sleep are valuable in all cases. Close investigation will commonly show that the ocular trouble has appeared and developed during some period of especial ill health. And the special treatment that such a condition requires is an essential part of the treatment for the cataract. As to applications to the eye or manipulations of the eye for the specific removal of cataract, many have been urged and much claimed for them, but none has stood the test of experience in the hands of unprejudiced observers.

ILLUSTRATIVE CASES OF SERIOUS DEFORMITIES RESULTING FROM MINOR INJURIES.[1]

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I have selected for discussion a subject that has proven instructive to me and I hope will be of interest to you in the study of cause and effect. In some of the cases to be referred to, it has seemed almost incredible that the ascertained cause should have produced such effects, but the explanation of gradual growth of the deformities and the accurate history of the trivial initial lesions, removes all doubt.

The province of the orthopedist is not alone to correct deformities already produced and often of long standing, but where opportunity presents, to have recourse to that large field of study and practical work, prophylaxis. This necessarily carries his researches into every part of medicine and surgery, and it is clearly impossible for him to have all cases that are apt to result in deformity under his close scrutiny at the beginning; therefore, he must resort to the method adopted in this paper. By affording illustrations of how serious deformities may be produced by apparently trivial causes, and directing attention to the possibility of preventing these results, he can accomplish much towards the prevention of the necessity of correcting deformities by preventing their

[1] Delivered before the Bucks County Medical Society.

occurrence. The large mass of cases of deformities, similar to those to be referred to, that have been under my care, have come to me at the hands of general practitioners. Therefore, it is to them that these remarks must be addressed, because it lies in their power, while treating comparatively trivial injuries, to avoid laying too much stress upon the reassuring statements often made, that the patient will outgrow it, or that it is a trifling affair at the most. Keeping in mind the possibilities of serious complications that may and often do result, they will teach patients under their observation to "Defer no time, delays have dangerous ends," and adopt early in disease preventive measures. A very important element, and generally the real cause, has been found to be neglect upon the part of the patient, possibly induced by misinterpretation of the reassurance of the family physician, or more frequently, by the ignorance of the patient as to the tendency of the results. The gradual progress of most of the deformities referred to, disarms suspicion as to the grave character of the ultimate result, and often puts off the attention they require until a long period has elapsed. I have so often heard patients, with progressive deformities or those already formed, say that they were told they "would outgrow it," or that some more or less obscure pain indicative of destructive action, was a "growing pain" that I thought it would be instructive to see if they always did outgrow it.

I am convinced upon a basis of experience that deformities rarely manifest any tendency towards correction, but once started, progress towards increasing departure from the normal standard. The young sapling, once distorted, does not, of its own sweet will, return to the paths of rectitude, but having entered crooked ways, develops into the gnarled oak that does not beautify, and becoming an eye-sore, is not nurtured with the care given to the evenly developed, beautiful tree. What result would follow efforts at straightening the full grown tree? Possibly the external appearances of the irregularities might be removed or covered up, but their existence could not be disturbed.

Exactly in a parallel manner may we not consider those deformities of the human form which are often such a reproach upon the medical profession. Just as in the crooked tree, their existence cannot be obliterated, and it becomes necessary to consider how near an approach to the normal usefulness may be accomplished. The deformity will still exist although its external appearance may be effectually concealed from public view, but the thought, "could not the deformity have been prevented," brings us to the subject in hand.

It will not be the purpose of this paper to discuss that fertile source of deformities found in tubercular patients, or those who inherit a tendency to tubercular manifestations; because it has become a well-known fact that patients or their parents invariably assign causes for any and every condition, whether there is any real connection between cause and effect or not. Thus, in tubercular joint disease might be shown one of the most serious factors in the etiology of deformities with which physicians have to deal. Traumatism is invariably given as a cause but generally it has such a remote connection that in the majority of such cases I have learned to disregard it believing that it is frequently only a coincidence. The falls and minor injuries received by children are of such common occurrence, and frequently so long a time has elapsed between the time of the supposed fall and the manifestation of the disease, that it is of doubtful value in the etiology of those deformities depending upon tubercular bone or joint diseases. It not infrequently occurs that a recent cause has been erroneously assigned to a condition that must have been in existence for a long time before the receipt of the injury referred to, and this is easily explained by the insidious character of most of the inflammatory joint affections having their origin in tubercular deposits.

The class of injuries to which attention will be especially directed in this paper are those which would ordinarily be considered trivial, and for that reason given less attention by the physician and the patient; and they may be grouped

for convenience in study under the heads of Contusions, Punctures, Lacerations and Burns. The importance of this subject has an illustration in the index finger of my left hand, the end of which was crushed in early youth. For a long time afterwards the presence of pain, or rather the fear of pain being produced, prevented its use, and there resulted a fibrous ankylosis of all of the joints of that finger. Determined efforts, however, finally overcame my repugnance to attempts to recover its use and I am constantly reminded by it of the necessity of early resorting to preventive measures.

Under the head of contusions, the class of cases may be illustrated by a typical case, that of a man twenty-four years old, who while driving a tack, struck his thumb-nail with the hammer. Extensive ecchymosis immediately followed. In twelve hours the thumb was immensely swollen, extending rapidly to the hand and arm to the shoulder. Palpation of the thumb developed the presence of pus, which by an incision was evacuated; high fever and great constitutional disturbance continued; multiple abscesses developed in both thighs, in the right knee and in the axillas. Upon the subsidence of the constitutional symptoms it was found that abscesses which had developed in the right knee had resulted in permanent ankylosis, which appeared at the time I first saw the case, to be of the nature of bony union. In the left leg the abscess was in the middle third of the thigh, anteriorly, and involved the quadriceps-extensor femoris muscle, thereby destroying its function. The flexion of the left leg was possible to not more than five degrees, and flexion terminated with a sudden stop as would be found were that checking produced by impinging upon bony substance. Careful examination showed that the joint surfaces were perfectly natural, and that the checking referred to was produced entirely by the destroyed function of the quadriceps muscle. In brief, the future of the case was a partial re-establishment of the function of the left knee, the flexion being increased to forty-five degrees, but it was necessary in order to get the leg out straight, for the patient to throw it instead of extending it as was natural.

The right knee was permanently ankylosed in the extended position.

Burns.—Cicatricial contraction from burns is a most prolific source of deformity and frequently requires extensive plastic operative procedures for their correction. In many of the cases that I have seen, the serious deformities could have been prevented at the time the original condition was treated, with the co-operation of the patient and attending physician. An illustrative case is that of a woman, aged twenty-two, who gave the history of having, at the age of three years, been burned with a hot poker at the bend of the elbow. She says that her mother was told to keep the arm in a sling, and the forced flexed position thereby maintained brought the granulating surfaces into contact and uniting produced the deformity. Judging from the appearance of the deformity in adult life, the burn could not have been a deep one, for the skin only seemed to be involved, and there was no evidence that it was followed by extensive sloughing. At the time I saw the patient it was impossible to extend the arm to a right angle; the nearest approach to extension was about forty-five degrees. The band of union extended from four inches above the wrist to five inches below the acromion process and was firm and unyielding as all such tissues are. The amount of usefulness of this arm was out of all proportion to the deformity; there was flexion and extension to the limit and extent referred to, but the patient had by practice acquired considerable usefulness. The elbow joint was unimpaired, there was perfect rotation of the radius, and the flexor and extensor muscular development was about normal. The mother of the patient stated that up to the age of ten years the deformity gradually increased in severity, but so slight was the progress that it escaped their attention. Now, after the elapse of twenty-one years, it would seem as though the adoption of preventive measures at the time of the injury would have saved the child the occurrence of the deformity which so seriously interfered with the woman's occupation, and which demanded an extensive plastic operation for its correction.

Punctures.—Many lives have been lost by so trivial an injury as a simple puncture, or even an abrasion of the skin where septic matter has been brought into contact at the time. I shall, however, refer only to an illustrative case where the simple puncture, apparently free from septic matter, has produced serious and more or less permanent deformity. The case to which I shall allude is that of a young girl, who while bare-footed, just out of a bath, with the feet still wet and therefore presumably clean, stepped upon a tack which barely entered the skin of the big toe. She withdrew it and as there was no severe pain or even bleeding, ignored it, and not until one week later was she aware of any ill consequences of the trivial injury. She was imbued with the fear of tetanus and avoided the use of the toe and foot as much as possible, and then began, she says, the resistless contraction of the leg upon the thigh and there ensued a loss of the function of the knee which was at the time I saw it flexed to a right angle. The patient stated that she never had severe pain, and at the beginning the discomfort was only from the inability to fully extend the leg. The patient found it necessary to have recourse to crutches and rarely used the affected leg in any way which facilitated ankylosis and the progress of muscular atrophy. Eight months after the receipt of the initial lesion, the condition of the patient was as follows: right leg, firm contraction of the semi-membranosis, the semi-tendinnosis, and the biceps tendons holding the leg at a right angle, beyond which point the leg could not be extended; complete flexion caused no pain, but extension could not be borne. The patella was apparently fixed upon the condyles, the atrophy of the muscles from disuse was clearly shown by the circumference of the calf at its largest part, being four inches less than its fellow. All of the lesser muscles of the foot were atrophied and as a result the foot was apparently a useless appendage. The case was presented to several surgeons in rotation. One of them is said to have recommended amputation of the lower third of the thigh, which I can hardly credit, although the

patient is very positive that such a procedure was recommended; one, excision of the knee joint, "because the knee cap was immovable;" another urged the application of mechanical apparatus for the purpose of gradually forcing the leg into the extended position; another, section of the contracted tendons, and by manipulation the attempt at re-establishment of the joint function. The latter was adopted and the ultimate recovery of the usefulness of the leg secured. It will probably be years before the full function of the leg will be re-established and all because of a most trivial injury and gross neglect on the part of the patient. No physician was consulted until the deformity had assumed the permanent character referred to.

Contusions.—A boy, aged 14, came under my notice with complete disuse of the left leg, on account of an ankylosis of the hip which was at a right angle to the body and markedly abducted, the knee of the same leg was ankylosed at a right angle. Under ether, an attempt was made to break up the adhesions and re-establish the functions of these joints, but it was found impossible to do so, and operative procedure was recommended. It was learned that while at play with some other boys he was thrown to the ground but it did not hurt him at the time, in fact he pursued his calling as errand boy for three ensuing days. On the fourth day he became sick, he says, with great pain in his knee and hip, and one week later a doctor was called. Three months after this comparatively trivial injury an abscess was evacuated in the outer part of the middle third of the thigh, which I learned was accompanied with periostitis. No attempt was made to rectify the faulty positions of the knee and hip, because although they gave evidence of being involved in inflammatory action, it was not supposed that it was of a serious nature. The inaccuracy of such opinion was shown by the permanency of the serious deformity which resulted.

Lacerations.—A man while washing a cracked pane of glass pressed with too great force and broke it, causing a jagged point of glass to tear the skin over his wrist. He

removed a small splinter that was stuck in the skin, believing that was all. There was very little bleeding and not much annoyance, therefore he completed his task before seeking medical aid. This still further assured him of the trifling character of the injury and the lack of necessity for observing any caution in regard to it. The physician applied a catgut suture and adhesive plaster, after rendering the wound aseptic. One month later severe pain in the hand made him again seek medical relief at the hands of another physician, and a palmar abscess appearing toward the wrist was incised. The abscess proved to be very extensive, having burrowed under the annular ligament, as was ascertained by passing the nozzle of the syringe into the various recesses, the nozzle coming into contact with some hard substance which proved to be a piece of glass, one-half inch long and about one-quarter of an inch wide. Here then was the buried cause of the abscess which resulted in almost complete destruction of the usefulness of the hand by inflammatory adhesions and contracted tendons. Take away a laboring man's right hand and he is deprived of means of making his living, and to give back to him that same right hand is to give him and his family financial support, and such proved to be the case here.

Thus have I given a very brief sketch of some cases taken from my case books, to open the discussion upon the subject of this paper. It has not been my intention to even allude to the plan of procedure to be adopted in the prevention of deformity resulting from trivial injuries, believing that with a knowledge of the occurrence, that the individual requirements of each case will receive the careful attention to prophylaxis that is required. A bank cashier once told me, in answer to my inquiry how he detected counterfeit money, "first I study to know the good and all kinds of false money, secondly I consider everything counterfeit until I prove it to be genuine." That was a thought that I have found to be of great value; first to know those conditions which will surely produce deformities;

secondly to consider all conditions as likely to produce deformities until I prove that they will not. In our hopefulness we are sometimes prone to be too sanguine and give too favorable a prognosis, and especially in that class of cases that almost invariably terminate satisfactorily.

RADICAL TREATMENT OF HYDROCELE.

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It is intended upon this occasion to briefly outline the methods of radically treating hydrocele of the tunica vaginalis in the adult, and to give a summary of conclusions arrived at from a recent study of the literature of the subject combined with the writer's personal experience. But, in passing, it may be remarked that aseptic tapping or aspiration of a simple hydrocele is still the popular and best method of treatment, when radical cure, for any reason, is not to be attempted.

Those radical methods which may fairly be considered obsolete and undeserving of remark are: by setons, tents, caustics, or by the injection of alcohol, port wine, chloride of zinc, perchloride of iron or hot water. Practically the only procedures used at present in attempting the radical cure of hydrocele may be conveniently divided into four principal methods. These are:

1. Tapping and injection of tincture of iodine.
2. Tapping and injection of carbolic acid.
3. Incision and subsequent drainage.
4. Incision and excision of parietal layer of tunica vaginalis.

Tapping and subsequent injection of tincture of iodine was introduced by Ronald Martin in 1832 and at once attained almost universal popularity. This preëminence was retained almost without challenge until the methods of carbolic acid injection and aseptic incision were introduced a few years ago. The general employment of the iodine

injection has since been steadily, but by no means rapidly, upon the decline.

The method of injecting iodine is as follows: The sac is emptied of all fluid by tapping in the usual manner after the parts have been well scrubbed and douched with 1–1000 bichloride solution. The canula of the trocar is left in position and a syringe that snugly fits it is applied and from 3j to 3iv of *pure* tincture of iodine (according to size of the sac) is injected into the hydrocele cavity. A finger is then placed over the opening of the canula and the latter withdrawn, leaving all of the iodine within the sac. It is important to do this in such a manner that none of the iodine will get into the cellular tissues as the instrument is withdrawn. Abscess or sloughing may follow this accident. After the canula has been thus carefully removed the scrotum is manipulated for a few seconds so as to work the irritating injection over all portions of the tunic. The wound made by the trocar should be protected with an ordinary antiseptic dressing, or by a small six-ply square of aseptic gauze, plastered down by collodion.

This injection is usually accompanied by intense pain and more or less shock. Subsequently plastic inflammation ensues and, if the case does well, the cavity of the tunica vaginalis is obliterated by universal adhesion of its walls. Prof. Simes has proposed the injection of several drachms of cocaine solution into the cavity after tapping, leaving it there for a few moments and then allowing it to run out through the canula before injecting the iodine, with the object of avoiding the intense pain that arises when the irritant is thrown in. This certainly accomplishes its object but has proved to be of very doubtful expediency owing to the erratic and sometimes fatal constitutional effects of cocaine, especially when it is accidentally injected into the cellular tissues. Dr. Simes himself has abandoned its use in this connection. Drs. Weir and Gordon Buck have advocated rough manipulation of the scrotum on the second or third day after injection when inflammation is at its height and claim by this means to secure a larger percent-

age of permanent cures. But, for obvious reasons, they have had but few followers.

By the iodine injection method about 80 per cent., of cases suited for it (see conclusions) are radically cured, and, when done aseptically, complications are uncommon. The patient is disabled for from one to two weeks.

Carbolic acid was proposed as a substitute for the iodine injection, by the late Dr. Richard J. Levis of Philadelphia, in 1881. This agent has been steadily increasing in professional esteem from that time to the present. By it, pain and shock are all but eliminated, complications are rare, the patient is not usually incapacitated for more than a day or two, and permanent cures are more frequent than where iodine is employed.

The acid is introduced by means of a syringe with a nozzle which almost fits the canula and long enough to project into the sac a quarter of an inch beyond the end of the canula. Pure carbolic acid, the crystals melted with five per cent. of glycerin, is employed. More dilute solutions are prone to induce suppuration or sloughing. From ♏xxx to ʒj of this mixture, according to the size of the hydrocele, is injected and allowed to remain in the sac. The syringe and canula are then withdrawn and the scrotum manipulated for a few seconds so that the acid shall be brought into contact with all portions of the sac. The trocar wound is dressed in the usual manner. It is well to direct the patient to lie down for two or three days or until the soreness and swelling that appear on the second day begin to subside.

The more rational and modern treatment of hydrocele dates from the year 1876, when Volkmann introduced the operation of aseptic incision and drainage of the hydrocele sac. This is performed in the following manner: The scrotum and pubis are shaved, scrubbed, and douched with 1–1000 bichloride of mercury solution. The patient is then etherized and a vertical incision to the full length of the cyst is made upon the anterior surface of the scrotum. This is carried down to and into the sac, which is then divided

to the full length of the skin incision. Clip forceps are put upon all bleeding points and the interior of the tunic examined for other cysts, cartilaginous deposits, or evidences of testicular disease. A small percentage of hydroceles will be found to consist of more than one cyst. These should be successively opened by knife or scissors and scraped out.

Careful inspection will frequently reveal the presence of numerous very small cysts taking origin around the globus major or minor. These should be sought for and, if found, opened and curetted out. Loose cartilaginous bodies or attached plates of cartilage, or bone, or even hairs, or actual dermoid cysts are occasionally found within a hydrocele sac. These, when present should always be carefully dissected out. Excision of portions of the sac may be necessary to thoroughly eradicate these growths. Next, all hemorrhage is to be checked by fine cat-gut ligatures and, after a washing with 1–1000 bichloride solution, sutures are introduced in such a manner as to unite the edges of the skin and sac wall along each side of the scrotal incision from end to end. A rubber drain tube of one quarter inch calibre is then introduced to the uttermost recess of the cavity and cut off one-half inch outside the wound. A copious dressing of bichloride gauze is finally applied to the entire scrotum and secured by a suitable gauze bandage.

This dressing should be renewed at least every second day or whenever it becomes soiled by excrement or otherwise. At each dressing the wound should be washed or sprayed out with peroxide of hydrogen (full strength) solution, and, afterwards, with a 1–2000 mercuric chloride solution. The drain tube should be shortened half an inch every second day, and even more rapidly if pushed up by granulations from the bottom of the wound. In about ten days or two weeks the granulations will be level with the surface and cicatrization will proceed rapidly. If the narrow line of granulations which finally remains to mark the line of incision is tardy in cicatrizing or if they become exuberant it is well to paint them with the nitrate of silver stick.

In from ten days to three weeks after operation by this method the patient should be able to resume his occupation. He should however be advised to wear a suspensory bandage until all swelling has departed from the scrotum and cord. Suppuration and inflammation are practically the only complications that ever occur and must be met, when they unfortunately do occur, by frequent dressings, vigorous use of the hydrogen peroxide and bichloride solutions, cutting away all sutures, and dustings with iodoform or aristol.

Bergmann in 1885 modified Volkmann's operation by excising the parietal layer of the tunica vaginalis and suturing the wound closely about the drain tube. The tube is removed on the second day and primary union is expected. I am informed by Dr. John Ashhurst, Jr. that the late Dr. Henry H. Smith of Philadelphia was accustomed to excise the parietal layer of the sac in treating hydroceles radically for many years before Bergmann published his paper on the subject.

This operation has not become as popular as was at first expected for a number of reasons. Chief of these are: the procedure is often an exceedingly difficult one; the testicle or cord may be injured or deprived of sufficient blood supply and subsequently slough or atrophy; hemorrhage is sometimes troublesome; complications are not infrequent; some recurrences take place; and, finally, while the operation is so much more severe and difficult than simple incision and drainage it is no more successful in producing cures than is the more simple and less dangerous method of Volkmann.

The judgment of the writer is therefore in favor of the operation of simple incision and drainage as advocated by Volkmann with this modification. Instead of the drain tube (which occasionally permits primary union of portions of the sac wall which later become retention cysts or new hydroceles) gauze packing of the entire sac cavity is resorted to. One long strip of iodoform gauze, one and one-half inches broad, is gently packed into every recess of the sac until the whole is distended. This packing is removed

every second day and replaced in diminishing quantities as granulations spring up from all sides of the sac; in other words, the sac as such is destroyed and replaced by connective tissue, thus ensuring a permanent cure. For if no secreting membrane remains no fluid will be poured out after the wound has closed and it will be impossible for a hydrocele to reform. If this modification of the Volkmann method is employed the time required to effect a cure is not extended and the necessity for doing Bergmann's operation will only arise in certain cases where the vaginal tunic is infiltrated with cartilaginous or calcareous material, or otherwise seriously diseased.

Conclusions. 1. Simple tapping, the injection of tincture of iodine or carbolic acid, and aseptic incision (with or without excision of a portion of the sac) are alone employed to any extent in the modern radical treatment of hydrocele.

2. Although other injection materials—notably bichloride of mercury solution and iodoform—have been commended, yet clinical proofs of their efficiency are lacking.

3. Simple tapping, under full antisepsis, may be relied upon to *relieve* any hydrocele and will cure a small percentage of cases.

4. The injection of moderate amounts of tincture of iodine (ʒj to ʒiv) or carbolic acid (♏xx to ʒj) will cure about 85 per cent. of the *simplest forms* of hydrocele. These two agents appear at present to stand almost upon an equality as regards percentage of cures and complications, but the acid has the advantages of not giving rise to pain or shock and produces a much shorter period of disability; it appears also to be steadily gaining in popularity, and has cured many cases where the previous use of iodine had failed.

5. Cocaine should not be employed to prevent the pain incident to injecting iodine, on account of its erratic and occasionally fatal constitutional effects.

6. The following conditions should prohibit any attempt at radical cure by irritant injections:

a. disease of the testicle or cord.

b. hydrocele complicated by hernia or the presence of a hernial sac, or where there is any doubt as to the relations of the hydrocele sac.

c. the presence of multiple cysts.

d. cloudiness of contained fluid.

e. thickening or tuberculosis of the cyst walls.

f. presence of considerable pain.

g. presence of syphilis, tuberculosis or any depraved physical condition. Potassium iodide will cure most hydroceles of syphilitic origin.

h. where communication with the abdominal cavity cannot be excluded.

i. the failure of previous attempts to cure in this manner.

j. great size of cyst.

k. extreme old age or where the cyst is developed in childhood.

7. A considerable time should be allowed to pass after reaccumulation of fluid following injection before undertaking other treatment as the effusion is apt to be inflammatory and to disappear in time.

8. While many complications and even deaths resulting from attempted radical cure by the injection method are on record, yet most of these can be traced to violation of the above mentioned contraindications, to the employment of too large a quantity of the irritant, to the neglect of antisepsis, and to injecting into cellular tissue.

9. The method of tapping and injection is the method *par excellence* for those not familiar with the technique of surgery.

10. Permanent cure may be anticipated with almost absolute certainty where the operation of incision and packing of the sac is performed. Failures under the Volkmann method can often be traced to:

a. overlooking small secondary cysts or cartilage-like bodies, or failure to recognize disease of the testicle or cord.

b. attempting to secure primary union.

c. too early removal of the drain tube where that method of drainage has been made use of.

d. too small an incision.

11. The substitution of gauze packing for the drain tube in Volkmann's operation will probably prevent most of the complications that have been reported, and secure, with proper attention to minute secondary cysts, a uniformly radical and safe cure.

12. The death rate from simple incision and drainage is no greater than is that from injection of iodine. Sepsis and careless hemostasis are responsible for almost all complications and reported fatalities.

13. Excision of a portion of the sac—Bergmann's operation—is probably unnecessary and unjustifiable except where the tunic is exceedingly thickened or otherwise extensively diseased, as when containing calcareous patches or tubercular infiltration.

14. Incision of the sac may be performed under any of the conditions which contraindicate irritant injections except extreme youth, and certain constitutional conditions.

15. In double hydrocele both should never be injected at the same time, but double incision may be done when the local and general conditions are favorable.

16. A radical cure can only be promised when incision is employed.

THE TREATMENT OF ULCERS.[1]

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Ulceration is one of the most frequent of the many conditions that a surgeon is called upon to treat; and sometimes gives not a little trouble and annoyance before cure can be effected. This is shown by the many different methods and applications that are constantly being recommended for the cure of ulcers.

[1]Abstract of a lecture delivered at the Philadelphia Polyclinic.

I wish to bring before you the methods that I have found the simplest and most efficacious. A thorough knowledge of the cause and condition of the ulcer must be obtained; without acquaintance with these two factors we can make very little headway toward a cure. Be particular when examining an ulcer to carefully note the character of the edges, for on their condition depends much of the treatment.

In healthy ulcers there is very little treatment needed, except protection from irritation and poisonous germs. This is best accomplished by applying an ordinary sublimate gauze dressing, after making the ulcer and the surrounding parts thoroughly aseptic.

It is well to describe what I mean by a healthy ulcer, for no matter what kind of an ulcer we may have to deal with, it must be brought into a healthy condition before we can expect a cure.

A healthy ulcer is one with even and smooth edges, and with granulations red, not bleeding easily when lightly handled and not protruding above the margins of the sore; such an ulcer secretes a serous fluid which is not purulent, although when the granulations are secreting pus it is usually called a healthy ulcer. This seems to me to be a misnomer, for we now know that the pus is due to pyrogenic germs coming in contact with the granulations, and therefore we can hardly call such a septic surface healthy.

Sometimes in otherwise healthy ulcers the granulations become sluggish and the healing process seems to come to a stop. In such conditions slight stimulation is required. This can best be accomplished by saturating a piece of lint, the size of the granulating surface, with a solution of

Zinc Sulphate gr. ijss,
Compound Spirits of Lavender f℥ss,
Water f℥j,

and applying it to the surface of the ulcer; and by placing on top of this another piece of lint spread with a 10% boric acid ointment. This ointment is placed on top of the lint saturated with the astringent solution, so that when the latter dries, which it will do in less than 12 hours, the oint-

ment will soak through the under lint, keep it soft, and allow its removal without disturbing the granulations.

Where we have a very large healthy granulating surface we resort to something more than these simple applications to promote cicatrization. This is best accomplished by skin-grafting. At times we have to resort to plastic operations before we can obtain the desired results.

In fungous ulcers where the granulations are very exuberant and extend over and above the surrounding edges it is usual to reduce them by caustics; but I prefer the knife or sharp curette, which are more effectual, and with which the object is more quickly gained. After cutting or scraping the excessive granulations away, a dressing of antiseptic gauze is applied.

An ulcer may become inflamed. In such cases the inflammation must be treated as is inflammation elsewhere, by rest to the part, and antiphlogistic remedies administered internally. I prefer where possible, and it is rarely that it is not, local irrigation with a weak solution of bichloride of mercury, say 1–3000 or 1–4000. Sometimes the inflammatory action goes on to sloughing; we then have what is called the sloughing ulcer. Here we need tonic internal treatment and locally wet sublimate gauze, covered with oiled silk or waxed paper. This dressing acts as a poultice and has the advantage of being antiseptic. We use it to hasten the separation of the slough.

Ulcers may be complicated with various conditions of the surrounding parts which must be treated either constitutionally or locally. One of the most common of these is a varicose condition of the veins. As this so-called "varicose" ulcer is usually seen, it is of the most chronic form, with hard thickened edges, at times almost callous, and the granulations secreting a thin, foul-smelling pus. Here we must first treat the cause, which is the varicose veins, by applying a rubber bandage. This must be worn constantly while the patient is up and about. Next the ulcer itself must be treated. The first step is to get rid of the hard edges; this can best be done by paring them away with a

sharp knife. Then free scarification of the surrounding parts and of the granulations themselves should be done to relieve the congestion; after which both peroxide of hydrogen and bichloride of mercury solutions may be successively applied.

After the surface has been thoroughly dried, strips of adhesive plaster, about one-half an inch wide are applied, beginning a trifle below the ulcer and extending two-thirds around the limb, each strip overlapping the one below about an eighth of an inch. They must be applied firmly and extend above the ulcer. The old fashioned resin adhesive plaster should be used as the so-called rubber plaster will not give as good results. Over this dressing you may apply the rubber bandage.

After an ulcer has partially healed, you will find in some cases that instead of continuing to cicatrize, it remains constantly about the same. In these cases you will find that it is necessary to resort to many applications before entire cicatrization takes place. One of the best applications for this condition is

Chloral Hydrate gr. x,
Oxide of Zinc Ointment ℥j.

The chloral acts as a slight stimulant to the granulations. Combined with this we have the healing properties of the oxide of zinc. Another good dressing is a 10% boric acid ointment. The treatment must be varied, for after a time, no matter what you use, the application will lose its effect.

In tubercular ulcers great attention must be paid to the constitutional treatment; and locally iodoform is the best remedy as it apparently is antagonistic to the tubercle bacillus.

Syphilitic ulcers must be treated locally, the same as any other ulcer, but anti-syphilitic remedies must be administered internally. My favorite prescription is a pill of proto iodide of mercury gr. ss, tannic acid gr. jss, three of which pills are given daily. The number of pills is gradually increased until the physiological effect of the drug is produced.

Where we have a small chronic ulcer it is well to dissect it out and draw the edges of the wound together by sutures.

JAUNDICE.[1]

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Jaundice is a condition in which the skin and other structures of the body are stained by the coloring-matter of the bile. The term is derived from the French word meaning yellow, as descriptive of the hue that is usually present. Icterus, the synonym of jaundice, is derived from the Greek word for golden thrush, in the belief that when this bird is seen by a jaundiced person, the omen bodes recovery for the patient and death for the bird.

The most obvious manifestation of jaundice is the discoloration of the skin and conjunctiva. The hue is usually of some shade of green and is most distinct where the skin is palest and is obscured by the flush of the circulation. The color is at first slight and of a yellowish tinge. As it persists, it becomes deeper and more decidedly greenish, ultimately assuming an olive tint. It is perhaps best seen in the conjunctiva, because of the white background formed by the sclerotic. It is also readily detected on the hard palate, from the firmness with which the soft structures are attached to the bone. It may be made apparent in the lips by expressing their blood. It may be seen on the ventral surface of the tongue when it escapes detection elsewhere, or is doubtful, as in colored persons. Undoubted jaundice may, however, escape detection if viewed by artificial light. The discoloration is by no means confined to the cutaneous surface. The internal organs are likewise stained. Of these the brain alone is said to escape. A yellowish tinge is imparted to fluid that may be present in the serous cavities. The milk, the tears and other secretions are not bile-stained. The yellow color sometimes presented by the sweat is

[1] Lecture delivered at the Polyclinic Hospital.

thought to be derived by absorption from the cutaneous epithelium. It is said that the sputum is discolored when jaundice accompanies pneumonia. Objects viewed by jaundiced persons may appear to be colored yellow—a condition known as xanthopsia or chromatopsia. Hemeralopia or night-blindness has also been recorded in jaundiced persons.

Next to the skin, the urine presents the most decided change when jaundice exists. As a matter of fact, careful observation will disclose that the urine assumes a deeper color than normal even before the skin displays the slightest indication of jaundice. The most readily applied test for the presence of biliary coloring matter in the urine is made by overlaying nitroso-nitric acid with the urine, a play of colors shading from red to green resulting; or a drop of urine and a drop of the acid may be permitted to come in contact on a white surface.

When it was maintained that there were two forms of jaundice, the presence of the biliary acids in the urine was considered as distinctive of the hepatogenous form; but it has been shown that it is at times difficult to demonstrate the presence of biliary acids in the urine in undoubted cases of hepatogenous jaundice, while the presence of the same acids can sometimes be demonstrated in the urine in cases that at one time or another have been considered as of hematogenous origin. The biliary acids may likewise be found in the urine in the total absence of jaundice. The simplest test for the biliary acids is that described by Pettenkoffer, if grape-sugar be added to the urine and subsequently sulphuric acid be added, a red color is produced.

The coloring-matter of the bile is bilirubin; by oxidation it is converted into biliverdin. Bilirubin and hematoidin are chemically identical. Both are derived from hemoglobin. Hematoidin is found in old blood extravasations that have undergone disintegration. It is, however, not a cause of jaundice.

There has been a good deal of discussion as to whether

bilirubin was brought to the liver preformed, merely to be separated by the hepatic cells, or whether its formation did not take place in the liver. The second view is the one that is now almost universally accepted. With the acceptance of this view the distinction between a hepatogenous and a hematogenous form of jaundice falls. The tendency of modern opinion is to the recognition of jaundice only of hepatogenous origin. Thus, the jaundice from such obvious forms of obstruction as gall-stones, neoplasms, cicatrices, compression from without, was considered hepatogenous; while the jaundice associated with acute yellow atrophy of the liver, phosphorus-poisoning, snake-bite, pyemia, malarial fever, inhalation of chloroform and ether, yellow fever, typhus fever, typhoid fever, remittent fever, pneumonia and the jaundice of the newborn were considered hematogenous.

It was held that in hematogenous jaundice, the discoloration of the skin is more decided and from the slower conversion of hemoglobin into bilirubin, appears earlier than the discoloration of the urine, while in hepatogenous jaundice the discoloration of the urine is the deeper and appears the earlier; but it has been shown that even in jaundice of unquestioned hepatogenous origin it is sometimes impossible to demonstrate the presence of biliary coloring-matter in the urine, owing to changes of an unknown nature, while at times it is possible to detect bilirubin early in the urine when jaundice of so-called hematogenous origin exists.

The discoloration of the tissues may be obscured by a brownish color of the skin. It has also been maintained that hematogenous jaundice is usually associated with evidences of dissolution of the blood, such as ecchymoses, a tendency to hemorrhage, albuminuria, hemoglobinemia and hemiglobinuria, and attended with symptoms of depression, debility, adynamia, collapse, muscular weakness, somnolence, stupor, often delirium, finally sopor and coma; but these manifestations may readily be explained by the primary condition; the free hemoglobin in the blood being converted

in the liver into bilirubin and the bile being so altered as to be readily absorbed.

In hematogenous jaundice, in contrast with hepatogenous jaundice, no cause of obstruction is found post-mortem; the liver is little discolored, the biliary passages contain bile; and the stools are not pale; but in some instances of so-called hematogenous jaundice it has been experimentally demonstrated that the changes are in the hepatic cells and in the primary biliary radicles, so that the obstruction is not complete or obvious, the biliary ducts and the intestines being at first supplied with bile; the absence of discoloration of the liver is apparent and dependent upon the hyperemia of the organ and the altered condition of the blood.

Senator has made the following classification of jaundice.

1. Icterus without polycholia.
   a. Obstruction within the biliary passages.
      Catarrhal swelling; mucus.
      Cholelithiasis.
      Parasites; foreign bodies.
      Cicatrices; neoplasms.
   b. Obstruction without the biliary passages.
      Tumors in the transverse fissure.
      Traction by bands or adhesions.
      Dislocated organs, as the kidney.
      Hepatic infiltration.
      Lowering of the blood-pressure in the blood-vessels and lymphatics of the liver, as with portal thrombosis or after hemorrhage.
2. Icterus with polycholia.
   a. Excessive disintegration of red blood-corpuscles (hypercythemolysis).
      Intoxications, as by potassium chlorate, carbolic acid, pyrogallic acid, ptomaines, etc.
      Periodic hemoglobinuria.
   b. Excess of red blood-corpuscles, in the new-born, after transfusion of blood.

Jaundice is never more than a symptom—although some-

times the most conspicuous symptom. Its recognition is but the first step in the diagnosis. It has been observed in connection with so many affections that it seems as if there were scarcely any in which it may not appear. Thus, jaundice may attend cholangitis, the presence of gall-stones or other foreign bodies (as worms) in the biliary canals, compression of the biliary canals by neoplasms, or displaced organs, acute yellow atrophy of the liver, phosphorus-poisoning, metallic and vegetable poisoning, yellow fever, cirrhosis of the liver, Weil's disease, pneumonia, malarial fever, typhoid fever, typhus fever, relapsing fever, snake bite, pyemia, emotion, disease of the heart; it may appear in the new-born and may follow the inhalation of chloroform or ether.

The cutaneous discoloration of jaundice is to be distinguished from that of cachectic conditions, such as carcinomatosis; from the yellow, waxy color observed in cases of profound anemia; from the pigmentation of Addison's disease; and from that due to exposure to the sun. In all of these conditions, however, the conjunctiva escapes and the urine will fail to yield the characteristic reactions of jaundice. Picric acid and potassium picrinate, employed in the treatment of tape-worms and of trichiniasis, have occasioned a yellowness of the skin. The ingestion of rhubarb, senna, chrysarobin, santonin and gamboge may impart a yellow color to acid urine, becoming red on the addition of an alkali. The diagnosis will be made upon the appearance of the conjunctiva, the appearance and reactions of the urine and the color and character of the stools, together with other collateral manifestations.

There are three sets of phenomena with which jaundice is associated. One is dependent upon the presence of the biliary constituents in the blood; the second upon the absence of bile from the intestinal tract; and the third comprises the symptoms of the causative condition. The first may be included under the term cholemia. The name acholia has been employed to indicate a failure on the

part of the liver to remove the elements of the bile from the blood. From the uncertainty of recognition of such a condition the term acholia might appropriately be used to designate the absence of bile from the intestine.

The most manifest phenomenon of jaundice is dependent upon the circulation in the blood of the coloring matter of the bile. Other manifestations that arise are to be ascribed to the action of the biliary acids in the blood-current. Thus, the pulse is commonly slowed, presumably from a toxic action of the acids upon the muscular fiber of the heart, perhaps also from a depressant action upon the cardiac ganglia. Often, the temperature is subnormal. There is itching of the skin, the scratching from which may cause eczema. Jaundice is associated with a tendency to hemorrhage.

As a result of the absence of bile from the intestinal contents the stools are pale, clay-colored. This is partly from the direct absence of bile and partly from the defective digestion of fats. Bile is a natural stimulant to peristalsis. Its absence is followed by constipation. Bile is also a disinfectant, so that its failure to enter the bowel may permit of undue decomposition and putrefaction. The stools are offensive and the irritation may induce diarrhœa. If the interference with the entrance of bile into the intestine is long maintained, the nutrition suffers largely from the defect of assimilation, and in part from the intoxication. Cerebral symptoms, depression, hebetude, languor, delirium, sometimes appear in association with jaundice. These have been ascribed to various influences. Long ago Flint made them dependent upon the presence of an excess of cholesterin in the blood—a condition of cholesteremia or cholesterinemia. Others have considered the symptoms due directly to the presence of the biliary constituents in the circulation and have called the condition cholemia. It seems possible that the manifestations result from the primary cause of the jaundice, when this is dependent upon an intoxicant or upon derangement of the body-metabolism, when the function of the liver is interfered with.

DISEASES OF THE FEMALE RECTUM, OFTEN MASKED BY UTERINE SYMPTOMS.

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The object of this paper is to call attention to some facts recognized by personal observation in the study of three cases which presented, as far as the history and symptoms were concerned, most typical evidence of uncomplicated and unassociated pelvic disease.

Case I.—Mrs. S., aged 30. Puberty at thirteen, and normal until after the birth of her first child. Married five years, two children, last pregnancy two years ago. First labor tedious, lasting thirty-six hours. Second birth quickly over. Both vertex presentations. Lying-in period normal. Has not been well for the past year and a half. Menses regular in time, lasting four days, and attended with cramp-like, bearing down pains. Pain diffused over the entire abdomen with soreness in both ovarian regions, also lumbo-sacral pains. Frequent desire to pass water with vesical tenesmus. Some leucorrhœa, albuminous in character. Bowels constipated. All other rectal symptoms negative. A feeling of general weakness and exhaustion.

This patient had been under the care of several of our best gynecologists as well as her own family physician. A repair of the cervix and perineum had been successfully made. She had been treated locally and constitutionally without any relief of her symptoms. She presented the appearance of one in ill health.

Physical Examination per vagina negative. She was about to be dismissed as one of those cases we know little about, and which, for the sake of ourselves or our reputation, we call neurotic, when it was suggested that an examination of her rectum be made. This was done and several fissures were found with rectal ulceration.

She was ordered to bed. Her bowels were opened by a saline, followed in the morning of the operation by an

enema. An anæsthetic was administered and the rectum washed and douched with 1 : 1000 bichloride solution; then by means of dilatation and stretching—both thumbs in the rectum—the fissures were torn apart and an application of nitrate of silver, 10 grs. to the ounce, made over the ulceration. The rectum was then packed with iodoform gauze. This completed the operation with instructions to give the patient, after coming out from the anæsthetic, a $\frac{1}{4}$ gr. of morphia with $\frac{1}{150}$ gr. of atropia hypodermically, to be repeated in four hours if the pain was severe. After twenty-four hours the gauze was to be removed, and the rectum again washed with bichloride solution, and a suppository of

Iodoform, gr. v.
Aqueous extract of opium, gr. $\frac{1}{2}$.
Tannic acid, gr. x.
Cocoa butter q. s.

was ordered to be introduced into the rectum every eight or ten hours; and at the expiration of seventy-two hours the bowels were to be opened by a glycerin enema.

It is best in these cases, on account of the tenderness of adhesions due to the healing of fissures and ulcerations, to keep the bowels firm, and, if there be no contraindications, it is well that they be not opened for from seventy-two to ninety-six hours. Subsequently every forty-eight hours and always for the first few weeks in having the bowels moved, it is well to instruct the patient to use an enema to prevent fecal irritation. This patient was kept quiet in bed for seven days and was dismissed at the end of ten days. There has been no return of her old symptoms and her general health has been restored.

Case II.—Mrs. H., aged twenty-five. Married, one child three years ago, menses normal, some ovarian pains, backache in the lumbar regions and a tired feeling in the lower part of the abdomen. Vesicle irritability. Bowels constipated. No pain when bowels are moved. No rectal tenesmus. In fact, no history of any rectal trouble. Losing flesh, feels weak, and is nervous and apprehensive.

Says she has "womb trouble, and has been treated for it a long time."

Physical examination per vagina negative. No evidence of any uterine disease. She was put in Sim's position and the rectum explored. A large cluster of tender hemorrhoids within the anal orifice, with some ulceration, were found.

In a few days she was operated upon for the hemorrhoids, giving the ulceration attention at that time also. She made an uninterrupted recovery, accompanied by the disappearance of all her uterine symptoms.

The third and last case noted in this paper is one of great interest, from the fact that we see cases that have been successfully and skilfully operated upon for some grave pelvic lesion, returning after months of suffering to say they are no better, so far as their feelings are concerned, than they were before the operation. They complain of almost the same identical symptoms as before the operation.

Case II.—Mrs. B., who gave a history of pyosalpingitis, and the ill health attending so serious a condition, was operated upon successfully, and the diagnosis, as far as it went, was proved by the pathological condition. She was then curetted for the endometritis and the uterine canal properly and successfully treated, and, as is usual in such cases, was promised a cure. After months of ill health and suffering she returned to see if something else could not be done to relieve her. To all intents and purposes, as far as her judgment was concerned, she was no better for the operation and treatment, and yet, she probably owed her life to the very operation she denounced as useless.

Until this time the rectum had been lost sight of, no doubt, from the fact that she gave no history looking directly to this part as a cause of her continued ill health. As is usual in such cases, she wandered from one physician to another seeking relief, willing to undergo anything for the sake or hope of health. It was finally proposed to examine her rectum, when at the first touch of the finger pressing through the external sphincter, she cried out,

"That's my pain." There was found one of the most tender and sensitive rectums that fissures and ulcerations in those parts can give rise to. The patient was at once put to bed, and the treatment, as outlined in the first case, carried out. In two weeks she was discharged as cured, and there has been no return of her old symptoms.

The question which naturally comes to the front, in reviewing these cases, is why did these particular patients, neither, by their history nor after carefully interrogating them as to their symptoms give any evidence of any rectal disease? All of them had the most pronounced uterine symptoms, and yet, in the second case there was no evidence upon physical examination of there ever having been any pelvic lesion. In the other two cases there was evidence and there had been serious disease. All three cases presented in the most typical form the symptoms of uncomplicated and unassociated pelvic disease.

The explanation for this may be found in the fact that the sympathetic nerve plays a most important part in the female. The inferior hypogastric or pelvic plexus of the sympathetic, lying as it does, at the side of the rectum, vagina and bladder in the female, accounts largely for the intimate sympathy existing between these organs. Be it idiosyncrasy, temperament, or nonconformity to the regular laws governing or presiding over normal functions, it is nevertheless true that in certain individuals this nerve has the power of reflecting symptoms of diseased conditions to healthy and normal parts, thereby throwing us off our guard as far as symptoms and history always answering to the lesions present.

This paper is not written in the spirit of criticism; for mistakes often teach deeper and more lasting lessons than successes. The instruction to be drawn from the citation of these cases is a stronger plea for more minuteness, for more care, for more thoroughness in our investigations of the minor details which, after all, is the essential to success in the diagnosis and treatment of any case.

It is not to be understood from this article that every

female examined for uterine trouble necessarily needs to have her rectum explored. There is nothing a modest woman so shrinks from as an investigation of that kind.

In a given case where the symptoms and history are not borne out by certain changes, or where it is necessary to institute operative measures for the cure of pathological lesions and these fail to either establish a diagnosis or to cure, it becomes important not only to make a careful rectal examination, but an examination of any and all organs likely to reflect their condition upon the organ being studied. When we have searched carefully along these lines, and with the exercise of that hard, common sense which we should bring to bear upon every case we study, then, and not till then, will we have discharged our duty to our patients or make it possible to have diagnoses without errors.

PRACTICAL HINTS ON THE CARE AND HANDLING OF SPECIMENS PRIOR TO AND DURING THEIR TRANSPORTATION TO THE PATHOLOGIST.

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AND

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The general drift of the medical men of to-day is towards some form of specialism. This is admittedly fortunate, as it enables men working in any individual field to become more or less masters of their art. Actuated by this principle, many general practitioners have never manifested any desire to become pathologists, they may know the theory of pathology, they may know the theory of morbid histology and

bacteriology but to work in that particular sphere has not been a possibe thing, so that investigations in these branches devolve upon men more or less devoted to that variety of work. Now it is a matter of great importance that specimens or materials of any kind, which are to be investigated should be so handled as to favor the technique of their ultimate investigation. The writers therefore deem it wise to outline some of the essential features in the preservation and hardening of morbid specimens.

In a general way, it may be considered that the materials to be preserved or transported are divisible into two classes, solid tissues and fluids. The solid tissues may be considered as embracing tissues belonging to any part of the body, the central nervous system requiring a separate and distinct treatment from tissues in other parts. The first thing to be considered in many instances is to get the specimen. This is a matter which requires great care on the part of the sender. If, for example, it is a tumor, he should be sure that he has part of the tumor and not the adjacent tissue. As an example of this, we have but to narrate an instance where a large tumor of the thigh surmounted by an ulcerated surface was waiting a diagnosis. The surgeon desired the microscopist to examine it and for this purpose a small portion of its surface was removed by a knife, and afterwards examined under a microscope. The pathologist pronounced the growth a sarcoma, the limb was amputated and the growth proved to be a deep seated lipoma. The source of the error lay in the fact that the surface of the lipoma had ulcerated and become surmounted by a thick layer of embryonic tissue, hence the mistake. The pathologist reports upon what he sees and can draw no inference as to what may be left behind.

Warren's canula is a very efficient instrument for removing the deeper parts of a tumor. Difficulties will often arise in securing enough tissue in ulcerations involving the cervix and genito urinary tract. Having secured the specimen, if an immediate report is desired, it may be placed

in at least ten times its weight of Muller's fluid, the formula for which is as follows:

Potassium bichromate	2 parts.
Sodium sulphate	1 part.
Water	100 parts.

If chromic acid is used, a one per cent solution in water will be sufficiently strong. If the specimens be from the nervous system, they must be preserved in Muller's fluid, which should be changed at least every three days until they are hardened. Specimens which are to be frozen and examined immediately should always be sent either in Muller's fluid or chromic acid, preferably Muller's fluid. Where there is no immediate haste for the examination of the specimen, it may be preserved in alcohol, beginning with thirty per cent strength and gradually increasing until the commercial alcohol is used. Alcohol cannot be employed for the preservation of nervous tissues as it rapidly leads to their softening and breaking down.

If it is desired to send a specimen of *sputum* to the pathologist, it should be placed in a clean bottle, which has been "fired." The firing consists in rinsing the bottle out with alcohol, pouring all the alcohol out and then, while the sides of the bottle are still moist, setting fire to that which remains. It is unnecessary to say that the bottle should be glass stoppered and that the stopper should be fired separately. The sputum may then be placed in a bottle, the bottle stoppered and shipped. Where the distance is very long, it is advisable to put into the bottle a crystal of thymol or camphor, or both, as this will prevent the rapid proliferation of the organisms in the specimen and the growth of moulds and other forms of vegetable parasites.

Urine.—In sending urine to the pathologist, where the distance is short, not requiring more than two or three hours from the time it is passed until it reaches the laboratory, it may be sent without any preservatory precautions. The only thing requisite is that the bottle should *always be full.* This prevents the breaking up of the casts by agitation. Where the urine is to be sent a very great distance,

involving twenty-four hours or more, it had best be managed as follows: An eight ounce bottle of a saturated solution of acetate of soda will be convenient. The urine of a morning is allowed to settle for six hours, when the sediment is drawn by means of a long pipette from the urine and added to the acetate of soda solution. This will be repeated with the evening's urine and again with the morning's urine and may be carried on for two or three days, when the acetate of soda bottle, containing the sediment from two or three days' urine, may be shipped to the pathologist for examination. This will only embrace an examination for cellular elements, casts, blood, mucus, etc., which may be so preserved indefinitely. Crystalline precipitates will be dissolved in the acetate of soda solution, or their chemical composition may change. Where but a few hours will intervene between the sending and the examination, thymol and camphor may be used as advised for sputum. Liquids other than urine, *e. g.*, pus, fluids from tappings, etc., should reach the pathologist at the earliest possible moment. Any fluid may be sent iced. Materials for bacteriological examination should be collected in receptacles supplied by the laboratory so that their sterilization may be assured.

Nothing should be mailed by reason of uncertainty, the express is more to be trusted.

Clinical Notes.

The Radical Treatment of Puerperal Sepsis.—The division of surgery pertaining to women has been a very fruitful subject for discussion. Gynecologists are disposed to claim the surgery of the pelvic organs as exclusively their province. Many general surgeons invade the same territory at pleasure, while ambitious obstetricians encroach upon the region which is supposed to belong to the gynecologist. There is, however, a distinct field of

obstetric surgery, and it embraces the treatment, by surgical procedures, of the conditions which may pertain to pregnancy, parturition, or the puerperal state. Thus, the induction of labor and the removal of the retroverted and septic uterus during early pregnancy are examples of obstetric surgery. The Cesarean section and craniotomy are also obstetric surgery, and curetting the puerperal uterus and the radical treatment by incision and drainage of puerperal peritonitis form a further example of the same branch of medicine.

There can be no question of the propriety, in some cases, of the radical treatment of puerperal sepsis. Such treatment, however, should not be undertaken until less dangerous measures have been given a thorough trial. To put the matter briefly and in sequence, we may say that beginning puerperal sepsis, characterized by vaginitis, puerperal ulcer and beginning perimetritis, should be treated by vaginal douches of bichloride of mercury, 1 to 5000, three or four in number during twenty-four hours; with these, the free use of salines and of turpentine stupes are of decided value.

Next in order comes the thorough disinfection of the interior of the uterus when foul lochia, continued fever and pain over the uterus give evidence of septic endometritis, accompanied by parametritis, and threaten general infection. This is best accomplished by the use of the intra-uterine curette with intra-uterine douches of creolin or carbolic acid two per cent, followed by an iodoform suppository containing sixty grains, left within the uterine cavity. The uterus may be tamponed with iodoform gauze to advantage after such disinfection.

If, however, the patient has not improved under the treatment already described, but evidences existence of septic metritis and peritonitis, then the septic uterus should be considered as a focus of infection, and this focus should be extirpated, if possible. A positive diagnosis cannot be made in these cases without abdominal section. Follow-

ing such a procedure, encysted peritoneal abscesses should be opened and drained, pelvic abscesses must also be emptied, and a septic uterus whose walls are infiltrated with pus and bacteria must be removed. In the present stage of obstetric science, the easier and safer method of performing this operation consists in amputating the uterus and bringing the stump without the peritoneal cavity. There are those already who prefer the total extirpation to uterine amputation and dropping the stump. Such a procedure has been performed as yet in so small a number of cases that we have much to learn regarding the precise indications and best methods of pursuing this radical treatment; that it is indicated, however, in many cases, we cannot doubt.

No less important than the surgical treatment of puerperal sepsis is the constitutional attention which the case demands. The value of alcohol as a systemic antiseptic is thoroughly proven, but it must be remembered that alcohol should be taken in the greatest possible quantities in these cases. Fever is to be combated by sponging, packing or bathing, and not by antipyretic drugs. The fall in temperature and invigorating effects following the application of cold are the signal for the administration of food and alcohol. Pyemic abscesses should be promptly opened and drained.

We have thus endeavored to epitomize the present state of our knowledge regarding the treatment of puerperal sepsis. The matter has been practically brought to our attention by a recent case in which the methods of treatment indicated were employed. The resort to extirpation of the uterus, or hysterectomy, should be determined upon only after careful consideration and as a logical necessity when less dangerous measures have proven inadequate, but there can be no question of the fact that in the near future lives will be saved by what is apparently the most radical, but truly the most conservative treatment of puerperal sepsis.

EDWARD P. DAVIS.

Book Notices.

ESSENTIALS OF DIAGNOSIS, ARRANGED IN THE FORM OF QUESTIONS AND ANSWERS, PREPARED ESPECIALLY FOR STUDENTS OF MEDICINE.—By Solomon Solis-Cohen, M. D., Professor of Clinical Medicine, and Applied Therapeutics in the Philadelphia Polyclinic, and Augustus A. Eshner, M. D., Instructor in Clinical Medicine in the Philadelphia Polyclinic; with fifty-five illustrations, pp. 382. Philadelphia, W. B. Saunders, 1892.

This book, as is stated in its preface, has been especially written for the benefit of medical students, and on the whole we think it will not fall short of its mission. The interrogative method of teaching which is employed here is popular, and in many respects efficient, but possesses serious drawbacks. It simplifies many points and impresses them on the mind of the student better than any other, but it also lacks capacity to develop a subject to its fullest extent without a waste of words and mental effort. But it must be said that by combining it largely with the illustrative method the authors have succeded well in their task.

The general plan of the book consists in first considering the nature of each disease, or diseased condition, second its symptoms and physical signs, and third its differentiation or variation from other diseases. The methods of physical investigation, of course, also receive due attention. Some omissions occur which should be embodied in a future edition. For example, tachycardia is well defined, on page 116; but why pass by its opposite, bradycardia, which is of equal importance. While not agreeing with the authors that atheromatous degeneration of the coronary arteries is most commonly associated with angina pectoris, nor being able to subscribe to the doctrine that potassium iodide is injurious in tuberculosis, we are sure that this book is a valuable addition not only to the library of the student but also to that of the practitioner of medicine. Thos. J. Mays.

SPECTACLES AND EYE GLASSES—THEIR FORMS, MOUNTING AND PROPER ADJUSTMENT.—By R. J. Phillips, M. D., Instructor in Diseases of the Eye in the Philadelphia Polyclinic, Ophthalmic Surgeon to the Presbyterian Hospital. With 47 illustrations. Pp. 105. Philadelphia. P. Blakiston Son & Co., 1892.

The value of a pair of glasses is very largely dependent on their mounting. This book will be of interest to those

who fit glasses, those who prescribe glasses and indeed to those who wear glasses and get them knocked or pulled out of shape. These last are hardly likely to take up so special a line of study but will benefit by the increased competence on the optician and oculist.

Dr. Phillips has reduced to convenient shape for reference and study a mass of valuable matter that has never before been brought together and rendered generally accessible. The accurate fitting of spectacle and eye-glass frames to the face of the wearer, though a matter of immense importance, has only been carefully and satisfactorily worked out within the last few years. Nowhere else has so much been done in this direction as in Philadelphia, where ophthalmologists and opticians have labored together. Hence there were many points in the adjustment of frames that heretofore could only have been learned in the course on the subject at the Philadelphia Polyclinic or in the fitting rooms of a few of the most scientific opticians.

With these methods of measuring for frames, prescribing, and adjusting them, we find full descriptions of the different forms of spectacles and eye glasses, of the component parts of each, the methods of their manufacture, the *modus operandi* of grinding and polishing lenses, and a very full and readable history of the use of lenses for the optical assistance of the eye. The illustrations are mainly original, are well chosen to elucidate the subject and fairly executed.

The enterprising optician will probably appreciate the value of such a work, which will be all the greater because it comes from the standpoint of the physician. But no one who prescribes glasses can afford to be without it. No medical course would be considered complete without some considerable knowledge of materia medica; and in this formative stage of the business of prescribing and dispensing spectacles and eye-glasses it is of far greater importance that the prescriber of lenses should thoroughly understand what he wishes to order for his patient.

E. J.

TENTH

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OF THE

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Pupils taking the general ticket are entitled to all the instruction here indicated; or they may, *by giving notice at time the ticket is issued*, substitute any instruction from the special schedules.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9 to 10		Dr. Carpenter. *Ophthalmology.*		Dr. Carpenter. *Ophthalmology.*		Dr. Carpenter. *Ophthalmology.*
10 to 11.	Dr. Lindsay, *Obstetrics.*	Prof. Taylor. *Children.*	Prof. Baldy. *Gynæcology.*	Prof. Baldy. *Gynæcology.*	Prof. Davis. *Obstetrics.*	Prof. Taylor. *Children.*
11 to 12.	Prof. Morton. *Surgery.*	Prof. Steinbach. *Surgery.*	Prof. Morton. *Surgery.*	Adj. Prof. Stern. *Surgery.*	Prof. Morton. *Surgery.*	Prof. Steinbach. *Surgery.*
12 to 12.45.	Prof. Cohen. *Medicine.*	Adj. Prof. Cantrell. *Dermatology.*	Prof. Van Harlingen. *Dermatology.*	Prof. Griffith. *Medicine.*	Prof. Cohen. *Medicine.*	Prof. Griffith. *Medicine.*
12.45 to 1.15. Intermission for Luncheon.						
1.15 to 2.	Prof. Baer. *Gynæcology.*	Prof. Randall. *Otology.*	Prof. Baer. *Gynæcology.*	Prof. Randall. *Otology.*	Prof. Baer. *Gynæcology.*	Prof. Randall. *Otology.*
2 to 3.	Prof. Wilson. *Orthopædics.*	Prof. MacCoy. *Laryngology.*	Prof. Wilson. *Orthopædics.*	Prof. Watson. *Laryngology.*	Prof. Watson. *Laryngology.*	Prof. Lee. *Orthopedics.*
3 to 4.	Dr. Bassette. *Neurology.*	Prof. Mays. *Chest.*	Prof. Mills. *Neurology.*	Prof. Mays. *Chest.*	Prof. Mills. *Neurology.*	Prof. Mays. *Chest.*
4 to 5.	Prof. Simes. *Venereal.*	Prof. de Schweinitz. *Ophthalmology.*	Prof. Simes. *Venereal.*	Prof. Risley. *Ophthalmology.*	Prof. Jackson. *Ophthalmology.*	Prof. de Schweinitz. *Ophthalmology.*
5 to 6.	Prof. Roberts. *Surgery.*	Dr. Burr. *Medicine.*	Adj. Prof. Bower. *Surgery.*	Prof. Deaver. *Surgery.*	Dr. Eshner. *Medicine.*	Dr. Brinkman. *Surgery.*
6 to 7.		Prof. Slocum. *Gynæcology.*				Prof. Slocum. *Gynæcology.*
7 to 8.	Dr. Adler. *Rectal Diseases.*		Dr. Adler. *Rectal Diseases.*		Dr. Adler. *Rectal Diseases.*	
8 to 9.	Prof. Mays. *Exp. Therapeutics.*	Lecture.	Medical Societies.	Medical Societies.	Lecture.	

GENERAL INFORMATION.

The Philadelphia Polyclinic and College for Graduates in Medicine, organized in December, 1882, and opened for clinical work and teaching early in 1883, and has steadily extended its facilities and opportunities for practical work, until now it has entered upon its tenth year, with a full corps of competent instructors, **the finest hospital building devoted to post-graduate instruction in the world,** its own dispensary services aggregating 12,000 new cases per annum, and with the clinical advantages of all the great hospitals in Philadelphia open and available to its pupils. Although its classes continue to increase, it still offers the direct personal instruction and the full opportunities for actual clinical work that have been so highly valued by its former students.

The Polyclinic opens to all graduates in medicine its facilities for acquiring a practical acquaintance with the clinical aspects of disease and the diagnostic procedures and methods of treatment in general medicine and surgery that were formerly attainable only by those who obtained positions as resident physicians in the larger hospitals; and in the special branches, like gynecology and diseases of the eye, ear, nose, and throat, the opportunities which it offers have never before been generally attainable, and are unsurpassed anywhere in this country or in Europe. The members of its limited classes personally examine cases of disease and employ the instruments of precision in diagnosis and treatment, participating in the actual work of the clinic and the laboratory. Didactic lecturing is used rarely and as an adjuvant.

Economy of Time.—Since to obtain the needed time is the greatest difficulty the established practitioner has to encounter, courses may begin at any date and the hours for instruction in the various departments have been arranged with a view to enabling the student, whether he takes a single branch or many, to make the fullest possible use of his time. The total amount of work offered is many times that which can be undertaken by any one person at one time; so that there is much room for choice to meet the needs of each as to available time and desired subjects.

The General Schedule (p. 6) shows a solid week of ten hours of work daily at the Polyclinic itself, and Special Schedules aggregating four times this amount will be sent on application.

The situation of the hospital is central, almost in a direct line midway between the University of Pennsylvania and the new site of the Jefferson Medical College—easily accessible from all directions, and near to such valuable special institutions as the Children's, Rush Consumption, Wills Eye, and Orthopedic Hospitals.

Pupils arriving at Broad Street Station can take the 17th street car on Sansom Street, or the red car on Walnut Street; from 9th and Green Streets take cars south to Pine Street, and west on Pine to 18th; from 24th and Chestnut take Lombard Street car on 22nd. A directory of boarding houses will be found at the Hospital.

Clinics.—The Clinic rooms permit of the fullest convenience in grouping, studying, and treating cases. They are well equipped with the requisite apparatus, instruments, appliances, and illustrative cabinets, for the investigation and treatment of the various forms of disease. There is a reading room supplied with all the current journals; where time not otherwise occupied can be well employed. The operating-room on the first ward floor is admirably lighted, thoroughly planned and equipped for modern aseptic methods; and supplied with an etherization-room on one side and a recovery-room on the other, so that no time is lost when a series of operations is to be done, while the steam elevator renders perfectly easy the transfer of patients to all parts of the building

The model arrangements in all respects make it worth the while of every medical man who can to visit and inspect the institution. A cordial invitation on do so is extended.

Certificate and Fellowship.—A handsomely engraved certificate of attendance will be furnished for a fee of five dollars to pupils who have taken the six weeks course in any or all departments.

Any pupil who has received the full course of instruction and passed a satisfactory examination in all departments shall upon nomination by the Faculty be elected by the Trustees a Fellow of the Philadelphia Polyclinic and College for Graduates in Medicine.

FEES.

Tickets are generally issued for a course of six consecutive weeks, the charge for the ticket of each Professor being $15.00. When the physician-pupil can attend but one day in the week, the period is extended to three months.

Six-weeks tickets for all the Instruction in these departments are issued at the following rates: Gynecology $35. General Surgery, Operative Surgery, General Medicine, or Diseases of the Eye $30. Other departments $15. Fracture Dressing and Bandaging $15. Electro-therapeutics alone $10. Urinary Analysis alone $10. One part of dissecting material $5.

A general ticket entitling the student to attend the work and instruction in all the clinical departments, as given in the general schedule (p. 6), or any special work which may have been chosen in substitution for any part of that schedule, is issued for six weeks for $90, three months for $150, one year $350.

Summer Course.—During the three months from the middle of June to the middle of September, the clinical work proceeds as usual, and regular instruction is continued by some of the Professors and by competent Instructors. The charges for instruction for this period are one-half of those for the winter term.

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SURGERY.

Professors.—JOHN B. ROBERTS, M. D., LEWIS W. STEINBACH, M. D., THOMAS S. K. MORTON, M. D., JOHN B. DEAVER, M. D.

Lecturer.—HENRY R. WHARTON, M. D.

Adjunct Professors.—COLLIER L. BOWER, M. D., MAX J. STERN, M. D.

Instructors.—LEWIS H. ADLER, JR., M. D., LEON BRINKMANN, M. D.

Assistants.—WILBUR P. KLAPP, M. D., CHARLES M. HAY, M. D., A. L. BARCUS, M. D., JOHN BACON, M. D., HARRY S. TORRENCE, M. D., ALEX C. BUTCHER, M. D.

The Surgical Department utilizes the enormous mass of clinical material offering at the Polyclinic Hospital, and throws open to students the surgical wards of almost every large hospital in the city. Major operations are of almost daily occurrence in the Polyclinic, and a large major and minor accident service is incident to the new buildings being situated in a densely populated district hitherto unprovided with surgical facilities.

Demonstrative clinical instruction (see rosters) is given daily in the wards, dispensaries and operating-rooms of the Polyclinic, and by members of the Faculty, in the following hospitals:

Episcopal,	Jewish,	Philadelphia,	St. Clement's,
Children's,	Methodist,	Presbyterian,	St. Mary's,
German,	Pennsylvania,	St. Agnes',	Woman's.

Students receive instruction in the diagnosis and operative treatment of surgical diseases and injuries, in surgical pathology, the use of instruments, and in the theory and practice of aseptic and antiseptic methods of wound-treatment, as well as in the preparation of antiseptic materials. Pupils are also given opportunities to dress and treat large numbers of cases, and are allotted in rotation to assist at or perform operations in suitable cases.

The class is likewise thoroughly drilled in the application to the manikin and living subject of bandages, splints, fracture apparatus, plaster bandages and surgical dressings in general.

Notices of operations to be performed at the Polyclinic or elsewhere are posted upon the bulletin-board. The sessions of all medical societies of Philadelphia at which surgical topics are discussed are open to students of the Polyclinic.

Operative Surgery on the Cadaver.—In the Surgical Laboratory a thorough description of the anatomy involved in the various operations of general surgery is given, after which the pupils perform on the cadaver all the usual and special operations, such as amputations, ligations, nerve sections, trephining, exploration of the spinal canal, hernia, abdominal section, excision of vermiform appendix, etc., under the supervision of the Professors. Facilities for dissection will be afforded to those who desire them.

Surgical Diseases of Children.—Dr. Henry R. Wharton will lecture upon the Surgical Diseases of Children throughout the winter session at the Children's Hospital (close to the Polyclinic), where he will utilize the very large amount of clinical material afforded by that institutiou. Special instruction will be given on the subjects of Tracheotomy and Intubation.

Diseases of the Rectum.—Dr. Lewis H. Adler, Jr., gives a special course in this branch of surgery, illustrated and demonstrated clinically by both dispensary and in-door patients at the Polyclinic.

Students are systematically instructed in the methods of examining, diagnosing and treating rectal diseases, and in the use of instruments. As this course is generally taken in conjunction with other branches, it has been arranged for the evening, so as not to interfere with other Polyclinic work.

ORTHOPEDIC SURGERY.

Professors.—H. Augustus Wilson, M. D., Thomas G. Morton, M. D., Benjamin Lee, M. D.

Clinical Assistants.—R. Stankowitch, M. D., W. L. Pepper, M. D.

Mechanicians.—A. G. Gefvert, Edward Spellerberg.

Instructor in Massage and Swedish Movements.—Jessie M. Ward.

Once a week Prof. Morton meets the class at the Orthopedic Hospital and Infirmary for Nervous Diseases, and, in this rich field, illustrates the operative and mechanical treatment of deformities.

At the Polyclinic, instruction is given by Prof. Wilson on Mondays, Wednesdays and Fridays, and on Tuesdays, Thursdays, and Saturdays by Prof. Lee.

The clinical lectures of Prof. Wilson at the Woman's Hospital can be attended by women pupils, and at the Jefferson Hospital by men.

The rich collection of dried specimens, casts, etc., in the Mütter Museum of the College of Physicians, N. E. cor. 13th and Locust Sts., is also utilized to illustrate the pathology of the affections under consideration.

The plan of instruction is by means of clinical demonstration of dispensary and ward cases, with special reference to spinal, hip and other joint diseases, club-foot, osseous malformations, and other bodily deformities, both congenital and acquired. Each case is thoroughly and practically studied, and, so far as is consistent with the welfare of the patient, is personally examined and treated by the physician pupils. The preparation and application of the plaster-of-Paris bandage, are features of this course.

Prof. Lee will devote especial attention to the diagnosis of the various deformities, the devising and adjustment of orthopedic appliances, and the employment of massage and the Swedish movements for the prevention and treatment of deformities and joint affections. His private orthopedic gymnasium will at times be open to the inspection of pupils.

The mechanicians are in attendance to demonstrate the fitting and adjusting of mechanical appliances.

REFRACTION AND DISEASES OF THE EYE.

Professors.—EDWARD JACKSON, M. D., SAMUEL D. RISLEY, M. D., GEORGE E. DE SCHWEINITZ, M. D.

Instructors.—THEODORE B. SCHNEIDEMAN, M. D., R. J. PHILLIPS, M. D., WM. J. ZENTMAYER, M. D., J. T. CARPENTER, JR., M. D.

Clinical Assistants.—FLORENCE MAYO, M. D., E. W. STEVENS, M. D., MARY GETTY, M. D., R. N. KEELY, M. D., JAMES THORINGTON, M. D., FRANCES W. JANNEY, M. D.

The course on this subject offers the best facilities anywhere attainable for the practical study of ophthalmology. The student taking it is enabled to spend the greater part of the day in actual clinical work, using the ophthalmoscope, test-lenses, etc. From two to four hours of clinical instruction are daily given by the Professors, the work during the remainder of the time being under the supervision of skilled instructors.

Clinical Facilities.—Professor Jackson lectures at the Polyclinic on Mondays, Wednesdays and Fridays at 4 P. M., and conducts a clinic at Wills Eye Hospital on Tuesdays, Thursdays and Saturdays at 2 P. M.

Professor Risley lectures at the Polyclinic on Thursdays at 4 P. M., and conducts the clinic at the Wills Eye Hospital on Mondays, Wednesdays and Fridays at 2 P. M., and during the Spring lectures at the University of Pennsylvania.

Professor de Schweinitz lectures at the Polyclinic on Tuesdays and Saturdays at 4 P. M., and conducts the ophthalmoscopic examinations at the Orthopedic Hospital and Infirmary for Nervous Diseases on Mondays, Wednesdays and Fridays at 1 P. M., from November to January, and May to July, he holds a daily clinic at the Philadelphia Hospital at 4 P. M., and during the winter term gives practical courses of operative instruction.

Dr. Schneideman holds a clinic at St. Christopher's Hospital on Mondays, Wednesdays and Fridays at 9 A. M., and takes charge of the clinic at 5 P. M. on the same days at the Polyclinic.

Dr. Phillips has the clinic at the Polyclinic on Tuesdays, Thursdays and Saturdays at 5 P. M., and during August, September and October he holds a clinic at the Presbyterian Hospital at 2 P. M.

Dr. Carpenter conducts the morning clinic at the Polyclinic daily at 9 A. M., teaching on Tuesdays, Thursdays and Saturdays.

Dr. Zentmayer conducts a clinic at the Children's Hospital on Tuesdays and Fridays at 11 A. M.

Systematic Course on Refraction.—The lectures by Professor Jackson at the Polyclinic, include a systematic course on Refraction, Ophthalmoscopy and Muscular Disorders, beginning October 3, 1892, and January 4, 1893. Practical instruction in these branches is also given in the various clinics.

The clinical service of the Wills Eye Hospital is, with perhaps a single exception, the largest ophthalmic clinic in America, comprising over 12,000 new cases each year; while the other services mentioned aggregate some 6000 more; giving access to a great variety of cases under conditions most favorable to their careful and profitable study.

The student should early provide himself with a good ophthalmoscope, to profit fully by the opportunities afforded for its use.

DISEASES OF THE EAR.

Professor.—B. Alexander Randall, M. D.
Adjunct Professor.—Ralph W. Seiss, M. D.
Chief of Clinic—William S. Shimer, M. D.
Assistants.—Henrietta Dougherty, M. D., Geo. C. Stout, M. D., Jeannie S. Adams, M. D.

Instruction is given in the diagnosis and treatment of diseases of the ear by means of direct examination of patients under the supervision of the Professor, who personally teaches each pupil in the methods of examination and the interpretation of the conditions seen. The time is principally given to actual practice in the study of cases and the application of treatment, with only little attention to the theoretical matters which can be readily obtained by reading. The practical surgical anatomy of the ear is constantly taught by means of normal and pathological preparations, models, photographs and microscopical sections. The rich cabinet of the Professor, as well as the magnificent collections in the Mütter Museum of the College of Physicians, illustrate admirably these much-neglected sides of the subject; and their utilization in conjunction with the clinical cases greatly facilitates the acquisition and retention of such a fundamental understanding of the subject. Stress is laid upon the recognition and treatment of the naso-pharyngeal conditions usually present, and upon the study of the broad general conditions underlying the local disease. The various operative measures of treatment are carefully considered and employed before the class in appropriate cases.

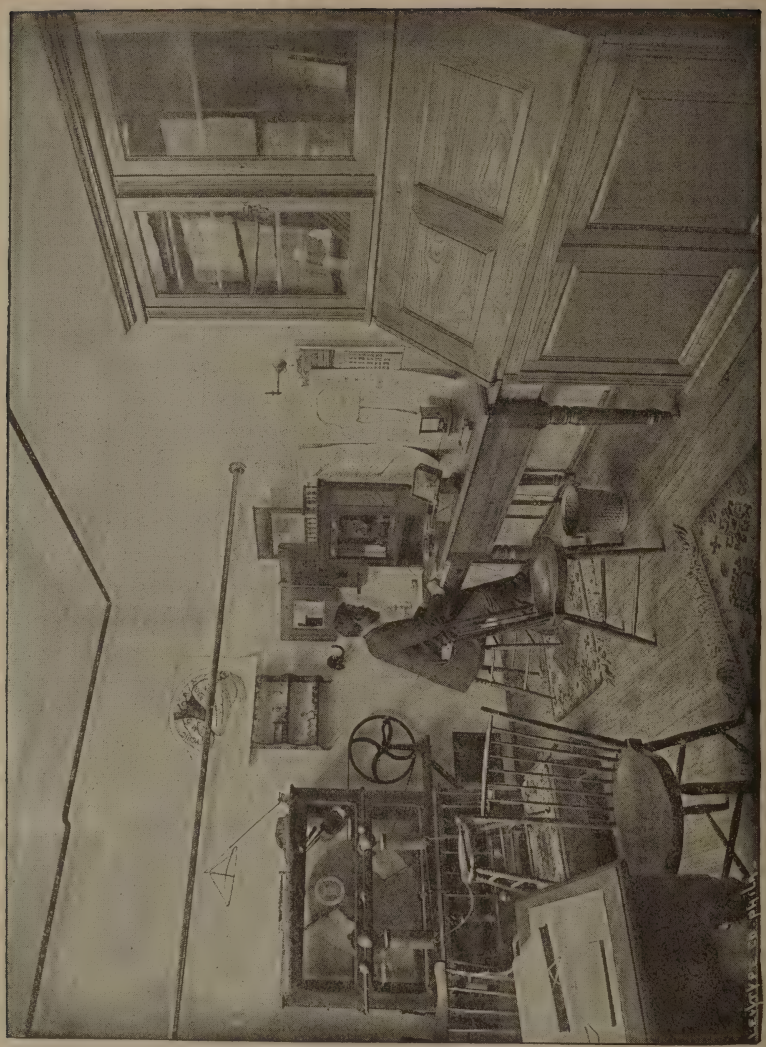
In addition to the facilities afforded by the Polyclinic, the aural cases at the adjacent Children's and Rush Consumption Hospitals will be utilized for teaching.

DISEASES OF THE THROAT AND NOSE.

Professors.—Alexander W. MacCoy, M. D., Arthur W. Watson, M. D.
Instructor.—Walter J. Freeman, M. D.
Assistants.—Charles A. Currie, M. D., A. H. Cleveland, M. D., Jos. S. Gibb, M. D.

The clinical service of this department is one of the largest in the city. Ample opportunities are here afforded to physicians taking the course for the study and treatment of the various phases of diseases of the upper air-passages. Each pupil is given individual instruction in laryngoscopy and rhinoscopy, and abundant opportunity to gain the facility and skill which practice alone can give. The patients are daily utilized for drawing attention to the pathological conditions present, and the changes which these undergo as the result of treatment. A large number of operations upon the throat and nose are performed in the presence and with the assistance of the members of the class, and all the latest methods of procedure are demonstrated or discussed. Twelve hours a week of clinical work is done at the Polyclinic, and a weekly systematic lecture is given by Prof. MacCoy. Additional teaching and opportunity for study are given by Prof. Watson twice a week at the Howard Hospital.

Laryngological Dispensary.



Neurological Dispensary.

PATHOLOGY, CLINICAL MICROSCOPY AND BACTERIOLOGY.

Adjunct Professor.—WILLIAM M. LATE COPLIN, M. D.

The Laboratory instruction in this department will be individual work. Each pupil will work at such hours as may suit his other engagements. He will be supplied with all the necessary apparatus, material, etc., without extra charge, but will be expected to pay for all slides and specimens which he may desire to take away for future use and reference. Arrangements will be made by which any one may follow out any special line of investigation that he may desire, and thus while learning and practising the advanced methods of laboratory technique for his own instruction and improvement, may add something to the general fund of knowledge through his original observations. A full bacteriological apparatus of sterilizers, incubators, etc., is available. Special instruments for the examination of blood, both for clinical and medico-legal purposes are in the laboratory, and students so desiring are taught their use. Special stress is laid on clinical microscopy, including bacteriology of sputum and other morbid products.

CLINICAL CHEMISTRY AND HYGIENE.

Professor.—HENRY LEFFMANN, M. D.

This course includes instruction in the tests and manipulations ordinarily employed as aids in medical diagnosis and prognosis, an outline of sanitary examinations of water and food, and elementary work in toxicology. Urinary analysis, which is part of the course, may be taken by itself for a reduced fee. Facilities will also be furnished for more extended and elaborate investigations to those desiring to prosecute original or advanced work.

DISEASES OF THE MIND AND NERVOUS SYSTEM.

Professors.—S. WEIR MITCHELL, M. D., CHARLES K. MILLS, M. D.
Lecturer.—WHARTON SINKLER, M. D.
Instructor in Nervous Diseases.—M. IMOGENE BASSETTE, M. D.
Instructor in Electro-Therapeutics.—J. WILLIAM MCCONNELL, M. D.

In this department opportunities of studying all forms of nervous and mental diseases are afforded by the dispensary service of the Polyclinic, and the wards for nervous diseases and the Insane Department of the Philadelphia Hospital. Plentiful material is thus furnished for the examination of cases. Demonstrations are made at frequent intervals. The clinic is especially well supplied with static, galvanic and faradic apparatus. Systematic, practical instruction in electro-therapeutics is also given, which may be taken separately, if desired, at a reduced fee.

Clinical and didactic instruction are given by Prof. Mitchell at the Orthopedic Hospital and Infirmary for Nervous Diseases, Fridays at 1 P. M.

CLINICAL MEDICINE, APPLIED THERAPEUTICS, PHYSICAL DIAGNOSIS AND DISEASES OF THE CHEST.

Professors.—THOMAS J. MAYS, M. D., SOLOMON SOLIS-COHEN, M. D., J. P. CROZER GRIFFITH, M. D.

Instructors.—CHAS. W. BURR, M. D., AUGUSTUS A. ESHNER, M. D., A. E. TUSSEY, M. D.

Chief of Clinic.—JAMES ROBINSON, M. D., HERBERT R. CARPENTER, M. D.

Clinical Assistants.—EMANUEL J. STOUT, M. D., AURELIO PALLONES, M. D., CHARLES HERWISCH, M. D., C. F. PETTIBONE, M. D., H. D. HAZZARD, M. D., HOWARD B. MARTIN, M. D.

In these allied departments the student is individually instructed in the various methods of making medical examinations, and is required to put to practical use the knowledge thus gained in the treatment of the abundant clinical material in the various clinics and in the hospital. He is taught, moreover, the art of associating the physical signs with the symptoms and clinical history of disease, and properly interpreting the whole.

Chest diseases are illustrated in the course of Prof. Mays, and the employment of the sphygmograph, cardiograph, etc., as aids in diagnosis, fully demonstrated. Special care is also taken to demonstrate the value of rest, nourishment and pneumatic as well as medicinal measures in the treatment of consumption, asthma and other diseases of the pulmonary apparatus. For this purpose the Rush Hospital for Consumption and Allied Diseases, only four squares distant, to which Profs. Mays and Griffith are physicians, is admirably adapted by reason of its full and elaborate equipment.

In the courses in Clinical Medicine, Prof. Cohen utilizes the large dispensary service at the Polyclinic and the full wards of the Philadelphia Hospital, while Prof. Griffith makes similar employment of his dispensary services at the Polyclinic, Children's and Howard Hospitals. Special attention is paid to clinical pathology. Diagnosis is carefully studied, with examination of the blood, the urine, the contents of the stomach, etc. Pupils are required to personally examine patients, make diagnoses and suggest treatment.

Opportunities will be afforded to pupils to make special investigations of the effects of remedies, or to make original clinical studies of any agents. Demonstrations of methods of artificial feeding and the preparation of food for the sick are given during each six weeks' course both by Prof. Cohen and the Instructor in Dietetics.

OBSTETRICS AND DISEASES OF CHILDREN.

Professors.—EDWARD P. DAVIS, M. D., J. MADISON TAYLOR, M. D.

Assistants.—MARY G. MOREY, M. D., T. PARRY TYSON, M. D.

The department of Obstetrics and Diseases of Children affords opportunities for the practical study of methods of diagnosis, including the measurement of the pelvis, the diagnosis of the contracted pelvis, auscultation and palpation. Opera-

tive procedures necessary in cases of difficult labor will be illustrated upon the manikin. Modern methods of treatment in the prevention of septicemia, and modern instruments for craniotomy and other obstetric operations will also be studied. In addition, a daily clinical service in Obstetrics and Diseases of Children is held at the Polyclinic Hospital, from which material will be drawn to illustrate the course. Modern methods of infant feeding will be demonstrated, and recent researches in the care of infants will be fully illustrated.

Prof. Davis will give clinical lectures on Saturday mornings in the months of January, February and March at the Philadelphia Hospital, Thirty-fourth and Pine Streets. During June, July, August and September practitioners may attend the Children's Clinic, held daily, at the Howard Hospital.

Prof. Taylor will hold a clinic at the Howard Hospital on Mondays and Thursdays September to March.

The service of Profs. Taylor and Griffith at the Children's Hospital, will afford rich additional opportunities for the study of the diseases of childhood.

DISEASES OF THE SKIN.

Professor.—ARTHUR VAN HARLINGEN, M. D.
Adjunct Professor.—J. ABBOTT CANTRELL, M. D.
Chief of Clinic.—JOSEPH M. MALATESTA, M. D.

In addition to the abundant clinical material at the Polyclinic, students have the opportunity of attending the important skin clinic of the Howard Hospital during Prof. Van Harlingen's term of service, and may also attend the valuable service of Adjunct Prof. Cantrell at the Philadelphia Hospital, embracing rare and severe forms of cutaneous disease.

Occasional didactic instruction is given to supplement the course, together with microscopic demonstrations.

GYNECOLOGY.

Professors.—B. F. BAER, M. D., J. M. BALDY, M. D., H. A. SLOCUM, M. D.
Lecturer.—CHARLES P. NOBLE, M. D.
Instructors.—W. A. N. DORLAND, M. D., HOMER C. BLOOM, M. D.
Clinical Assistants.—F. W. TALLEY, M. D., KATE BALDWIN, M. D.

The course of study in this department is thoroughly practical. It consists in the presentation of cases for examination, diagnosis and treatment under the direct personal supervision of the Professors, who hold six clinics a week at the Polyclinic. In the hospital operating-room the various abdominal and plastic operations will be done before the class, and the operations at the Gynecean Hospital will be open to the students taking this course.

Dr. Charles P. Noble will hold clinics on Mondays and Thursdays at the Kensington Hospital for Women, where a valuable service affords a rich field of operative work.

GENITO-URINARY AND VENEREAL DISEASES.

Professor.—J. HENRY C. SIMES, M. D.

Adjunct Professor.—THOMAS R. NEILSON, M. D.

Clinical Assistants.—NATHAN P. GRIMM, M. D., JOHN LINDSAY, M. D.

The instruction given in this department affords the student an opportunity of learning the diagnosis, treatment and pathology of these diseases by means of direct observation and practice. The instruments employed in the examination and treatment of these cases are applied by the members of the class, under the direction and supervision of the Professor. The electric urethroscope will be utilized, and all the operative measures demonstrated or discussed. The general surgical services of Prof. Simes and Dr. Neilson, at the Episcopal Hospital, afford much genito-urinary as well as rich general operative material.

TEXT-BOOKS RECOMMENDED.

Diseases of the Throat and Nose.—Bosworth. Browne. Mackenzie. Robinson. McBride.

Diseases of the Chest.—Flint. West, on How to Examine the Chest. Cohen, on Inhalation. Wilson Fox, Diseases of the Lungs and Pleura.

Anatomy and Surgery.—Gray's Anatomy. Robert's Compend. Robert's Modern Surgery. Senn's Principles of Surgery.

Diseases of the Ear.—Burnett. Pritchard. Politzer. Hartmann. Roosa. Buck.

Diseases of the Mind.—Spitzka. Hammond. Clouston.

Diseases of the Nervous System.—Gowers. Ross. Herter.

Electro-Therapeutics.—Amidon. Erb. De Watteville. Massey.

Clinical Chemistry and Hygiene.—Leffmann's Compend of Chemistry. Leffmann and Beam's Water Analysis. Reese Toxicology. Coplin and Bevan Hygiene.

Diseases of the Skin.—Van Harlingen's Handbook on Skin Diseases.

Diseases of the Eye.—Jackson's Essentials, De Schweinitz Handbook. Nettleship's Student's Manual. Hartridge, Refraction of the Eye. Swanzy. Phillips, Spectacles and Eye-glasses.

Genito-Urinary and Venereal Diseases.—Bumstead and Taylor. Cornil on Syphilis, translated by Simes and White.

Orthopedic Surgery.—Bradford and Lovett.

Diseases of Women.—Thomas. Emmet. Hart and Barbour. Goodell. Croom.

Diseases of Children.—Meigs and Pepper. Smith. Goodhart.

Obstetrics.—Davis. Lusk. Playfair. Barnes.

Pathology and Microscopy.—Gibbes. Green's Pathology. Cornil and Ranvier.

Medicine and Therapeutics.—Cohen and Eshner's Essentials of Medical Diagnosis. DaCosta's Diagnosis. Hilton Fagge's Practice. Osler's Practice. Brunton's Pharmacology. Yeo's Food in Health and Disease.

Massage and Swedish Movements.—Lee and Reibmayr's Tracts on Massage. Murrell's Massage as a Mode of Treatment. Mills' Nursing and Care of the Nervous and the Insane.

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THE

PHILADELPHIA POLYCLINIC.

DECEMBER, 1892.

THE DIAGNOSIS OF THE MORE FREQUENT ORGANIC HEART MURMURS.[1]

By J. P. Crozer Griffith, M. D.,

PROFESSOR OF CLINICAL MEDICINE IN THE PHILADELPHIA POLYCLINIC.

Gentlemen:—I wish to talk to you to-day upon the differential diagnosis of some of the commonest of the cardiac murmurs, and to illustrate what I have to say by one or two cases. I choose this subject because in my experience this matter, which we are all supposed to have learned while in college, is not at all well understood by many physicians. I find them, in fact very much at sea in the examination of the heart. So, although what I have to say is really very simple and although some of you may consider it entirely too elementary, yet I hope it may be of assistance to some others present. The subject is so large that I can give you only the briefest outline of it; sufficient however to be somewhat of a guide to you in the examination of cases under your care.

We shall leave out of consideration to-day all such cases as the congenital lesions of the right side of the heart, such as pulmonary stenosis, patulous ductus arteriosus and the like. These conditions are not only very rare, but their recognition is often extremely difficult and sometimes even impossible, both because the physical signs of each are not well understood, and because it is rather unusual for any one of the lesions to exist alone. For example if you have

[1] A Clinical Lecture delivered at the Philadelphia Polyclinic.

a patulous ductus arteriosus you are also very likely to have a persisting foramen ovale, and, perhaps, a stenosed pulmonary orifice as well; and even the longest practice in the examination of hearts may not enable you to come to any conclusion in the matter. So, too, I shall say nothing about dilatation of the tricuspid orifice and regurgitation through it, because this is a condition usually consecutive to regurgitation through the mitral valve.

Nor shall I enter upon the consideration of the murmurs of anemia which you recognize by their distribution, their character, their association with marked evidences of anemia, and by the absence of any signs of organic cardiac disease:—although it is only right to say that many of these murmurs are probably valvular in origin. Neither shall I take up the large subject of aneurism; inasmuch as this affection has its own peculiar symptoms much more important than any murmurs which may attend its presence. I want also to omit to-day all mention of the subjective and other symptoms of valvular diseases of the heart, and to confine myself entirely to the physical examination of the chest; since even thus I shall have more than I can do justice to.

It will simplify the subject to remember that for all practical purposes we have to do with but four lesions of the valves of the heart and four murmurs which belong to them, one to each. Of course you may have a combination of two or more murmurs in a case, but the same method of examination and analysis which enables you to detect and recognize a single murmur will enable you to recognize more than one. Four murmurs surely do not constitute a very large number, and you should certainly be able to identify them.

In the first place remember that two of these are systolic and two diastolic. Therefore when you have determined to which class your murmur belongs, you have reduced your difficulty in diagnosis by one half, and you have but two murmurs to choose from. Students sometimes find it difficult, however, to determine this point, so it may aid

you, perhaps, if we analyze just what we mean by systolic and diastolic.

The systole of the heart is, so far as we have to do with it to-day, the contraction of the left ventricle during and by means of which the blood is expelled from it. Now in this period there are only two directions in which the blood can run; viz. either through the aortic valve into the aorta, whither it ought to go, or back through a diseased mitral orifice into the left auricle whither it ought not to go. If the aortic valve is narrow and stiff we have the murmur of aortic stenosis produced, and if the blood runs backward through the mitral orifice we have the murmur of mitral regurgitation. These two are then the two systolic murmurs, and are therefore sometimes called aortic systolic and mitral systolic murmurs.

The diastole of the heart is, for us to-day, the time during which the left ventricle is relaxed and ready to receive blood. It can receive this blood from only two places: viz. from the left auricle, whence it ought to come, and from the aorta through an insufficient aortic valve, whence it ought not to come. In the latter case it is very likely to produce a murmur, that of aortic regurgitation, and, on the other hand, if it is obliged in passing from the left auricle to go through a mitral orifice made very narrow by disease, it also produces a murmur, that of mitral stenosis, or mitral obstruction. These two then are our two diastolic murmurs, sometimes called aortic diastolic and mitral diastolic murmurs. This last is also sometimes termed presystolic mitral murmur, but the name is confusing.

Now although this explains to you the theory of systole and diastole yet a difficulty sometimes arises in determining by the ear just which is which. I do not wonder that this is so. The sounds of the heart are very much alike in some cases, and experienced observers have confused the two at times. Let us look at systole and diastole, then, from another standpoint, and see if we can find any infallible way to distinguish the one from the other by our physical exploration.

Pages have been written regarding the exact time in the cardiac cycle at which systole begins. The matter, however, is now pretty conclusively settled, to the satisfaction of most physicians at least. I shall not teach you anything not very generally admitted when I say that systole, i. e. the contraction of the left ventricle, begins with the apex beat. Just how long it lasts has also been a disputed point. It now seems, however, to be pretty positively determined that it continues until we hear the second sound of the heart, which, as you know is due to the closure of the aortic leaflets, and for which you listen at the second costal cartilage on the right side, called the aortic cartilage. Or should the aortic valves be so diseased that you fail to hear the second sound here, you then listen at the corresponding cartilage on the left, called the pulmonary cartilage; where you hear the closure of the pulmonary leaflets. I do not say that the blood is passing from the ventricle into the aorta during all the time of systole. As a matter of fact there is a very brief and scarcely perceptible interval just before the second sound in which the ventricle is simply remaining in a contracted state. It is evident to you, however, that the moment the ventricle relaxes, i. e. that diastole begins, the blood in the aorta under high pressure will rush back upon the aortic leaflets, close them, and thus produce the second sound. I need hardly say that of course the right ventricle relaxes at the same time and the blood in the pulmonary artery closes the semilunar valve in it, and that this aids in the production of the second sound.

Consequently we say that the apex beat marks the first sound and the beginning of systole, while the second sound indicates the beginning of diastole. Any murmur, then, which extends from, and including, the time of the apex beat up to the second sound must be systolic; and any murmur occurring in the interval which extends from, and including, the second sound up to the apex beat is diastolic. Dismiss then from your minds in examining your cases all theory about systole and diastole, and simply try to answer

yourself these two questions. Does this murmur occur after the second sound but before the apex beat? Does it occur with the apex beat but before the second sound? If the first it is diastolic; if the second systolic.

You can now understand how important a matter it is to determine the time of the apex beat. If I put my stethoscope over a heart and hear a murmur which I perceive is not a perfectly plain one, I make it an invariable rule to remove the instrument at once before I get any settled erroneous idea regarding the lesion fixed in my mind. Then I put my finger over the apex beat and begin to count the heart. Or, if you please, you can place your finger over the carotid instead of the apex. You must not, however, time the heart by the radial pulse, since the beat at the wrist is a little retarded, and you will get only incorrect results. After I have got the rhythm of the heart fully in my mind I still keep my finger in position and replace the stethoscope and listen beside the finger and then in various other parts over the cardiac area. In this way the case is usually made clear and I have no difficulty in satisfying myself whether the murmur is systolic or diastolic, with or before the apex beat. If I find that the murmur seems to be more closely connected with the second sound, by keeping my finger on the apex I determine first of all which is the second sound. Then by listening over the aortic cartilage, or, in case through disease the sound cannot be heard here, then over the pulmonary cartilage, I discover whether the murmur comes before or after or with this second sound. If before, it is systolic; if with or after it is diastolic.

I want, gentlemen, to impress you particularly with the importance of this matter of timing the heart. A proper care in this respect will save you blunders in the future. I have, I know, made mistakes by omitting the precaution, and it may do you good to relate one of them to you. Some years ago I made an examination of a girl's heart and recorded notes of it in which I described it as an instance of mitral regurgitant, i. e. systolic, murmur. The case seemed

so clear that I had no doubt about it. Several years later I saw the girl again, and this time described the case in my notes as an evident one of mitral obstructive, i. e. diastolic, murmur; quite forgetting about the previous diagnosis I had made. The girl died and her heart exhibited a beautiful and typical instance of mitral stenosis. I preserved it and have brought it here to-day to show you. You will observe how the mitral valve is contracted into a little slit just like a small buttonhole, so that the blood must have had the greatest difficulty in passing through it. In my first examination of the case I had simply neglected to time the heart.

Supposing now in any case that you have determined the time of the murmur, the next point is to discover with which of the two systolic or two diastolic murmurs you have to do. To accomplish this you must take into consideration the areas of the diffusion and of maximum intensity of the different murmurs. This is too large a subject to discuss at length. Generally speaking murmurs are heard loudest at the places at which they are produced, or in the direction in which the blood is passing. Therefore if you have a murmur which you have determined to be systolic and which is heard loudest at the apex or in that general region, including the axilla, you believe it to be produced by regurgitation of blood through the mitral orifice; a mitral systolic murmur. If on the other hand you cannot hear it in this area but do hear it at the aortic cartilage and propagated into the neck, i. e. the carotids, you are sure it is produced by a stenosis at the aortic orifice; an aortic systolic murmur.

Suppose on the other hand that you have made up your mind that the murmur is diastolic. If it is heard at the aortic cartilage and down the sternum you are sure it is produced by regurgitation through an insufficient aortic valve; it is an aortic diastolic murmur. If, however, you hear it only in a very small area; a circle not more than three inches in diameter, with its center just within and above the apex; you have reason to consider that it is pro-

duced by stenosis of the mitral valve; i. e. you have a mitral diastolic murmur.

This may all sound very clear as I tell it, but you may find that on the examination of some heart you are still not quite decided. Are there then any other points which may be a guide? We shall certainly find some if we turn for a moment to the consideration of what is happening in the heart in the case of any given lesion. Take again the two systolic murmurs. Suppose you believe that you have before you a case of aortic systolic murmur. In this affection the left ventricle has to do a great excess of work in order to get the blood through the stenosed aortic orifice, and as a natural result will enlarge. In evidence of this the apex beat will be powerful and will be felt, perhaps, in the 6th interspace instead of in the 5th. Perhaps, also, you find on percussion that the wall of the ventricle extends somewhat beyond the nipple line toward the left—the nipple line being the normal border of the left heart. This, too, indicates enlargement of the ventricle. Of course the right side of the heart is not materially affected, as no unusual strain is thrown upon it.

Suppose, on the other hand, that you suspect a mitral systolic murmur. Here, too, the left ventricle has extra work to do, as it has to send blood in two directions at once. But when you remember that a large amount of blood is being dammed up in the lungs on account of the failure of the mitral valve to close, you will see that the right side of the heart, also, has a great extra tax made upon it to overcome this increased resistance. Consequently in this lesion you find an enlargement, particularly of the right side of the heart. There may be forcible pulsation in the epigastrium, caused by the impulse of the hypertrophied right ventricle against the diaphragm here. Then on percussion you find that the right border of the heart; which is, of course the border of the right ventricle and auricle, extends perhaps even to the right edge of the sternum, and you have another proof of the enlargement of the right heart. Still again, if you listen at the second left costal cartilage

for the sound of the pulmonary semilunar valve, you will find that this sound is unusually loud. It may be as loud as that of the aortic valves or even louder. This is due to the increased pressure upon the leaflets, caused by the blood regurgitating upon them through the diseased mitral orifice.

Go back likewise to the two diastolic murmurs. In the case of the mitral diastolic murmur the blood has the greatest difficulty in passing from the left auricle into the left ventricle. Of course this throws tremendous work upon the right side of the heart as well, since the left auricle, unaided, is entirely unable to overcome the resistance. You therefore find the evidences of enlargement of the right side of the heart just as you do in the mitral systolic murmurs: viz. cardiac dullness extending to the right, accentuated second sound at the second left costal cartilage, and perhaps epigastric pulsation. If anything were needed to convince you in addition to these signs and the limited diffusion of the murmur, listen at the aortic cartilage. Here you will detect a perfectly normal second sound, proving that the aortic valves are closing in a perfectly normal manner and that the murmur cannot possibly be produced there. Of course the left ventricle is not hypertrophied, for its difficulty is rather to get blood enough. On the other hand, in the case of an aortic diastolic murmur a great excess of work is thrown upon the left ventricle since it has to take the place of both ventricle and aortic valve. You therefore find all the signs of enlargement which I have described as belonging to aortic stenosis.

I have said nothing as yet about the respective differences in the sounds of these two diastolic murmurs; though they are very different. The murmur of mitral stenosis is usually low-pitched and remarkably rough, resembling, it is often said, the trilled "r", while that of aortic regurgitation resembles rather the smooth, spoken "r", and is higher pitched. One cannot, however, depend absolutely upon this. I have likewise said nothing about the difference in the exact time at which these two murmurs occur. The aortic diastolic

murmur begins *with* the second sound, partially or entirely replacing it, and lasts through all or part of the diastolic period. The mitral diastolic murmur, on the other hand, very frequently occurs in the last portion only of this diastolic period, and is on that account sometimes called *presystolic*. I have already said,—and I want particularly to impress upon you,—that this name is misleading, since it is apt to make one consider the presystolic and the diastolic mitral murmurs as different entities. The former is, in reality, only a variety of the latter. The mitral diastolic murmur does not need to occur so late. It may occupy all or any portion of the diastole, perhaps beginning immediately after the second sound, although it never replaces it. It is, moreover, very apt to be accompanied by a rough vibratory thrill which can be felt by the hand over the region where the murmur is most audible, and which, naturally, occurs at the same time with it. A thrill, however, can sometimes be felt with any of the cardiac murmurs, though probably not so frequently as with this one. The position and time of any thrill naturally varies with the variety of murmur.

Of course it is a frequent thing to have two murmurs combined in the same case. For example a mitral diastolic murmur is very apt to be immediately followed by a mitral systolic one; and a similar association often exists between the two aortic murmurs. Or we may have three or even all four of the murmurs present in the same case. Do not let this at all confuse you however. You approach these cases in exactly the same way as though but a single murmur were present, and study each as an individual, entirely disregarding all others until you have settled the nature of one. Suppose, for instance, that you find a murmur at the apex which begins before the apex beat, runs into it and continues after it. Analyze it in the way I have described. The murmur is both before and after the apex beat, therefore it is both diastolic and systolic; that is to say you have in reality two murmurs closely connected, a mitral diastolic and a mitral systolic. Suppose, on

the other hand, that you hear only one murmur in the cardiac area, and that at the time of the apex beat. It is quite loud at the aortic cartilage and in the carotid, and also quite loud at the apex and in the axilla. If, now, you find that there is a point some-where mid-way between the apex and the aortic cartilage where the murmur is heard very faintly or not at all, or if there is a distinct difference in the pitch or the quality of the sound as heard at the two places, you feel quite sure that you have to do with two murmurs, one produced at each place; a mitral systolic and an aortic systolic. And thus you proceed with the other combinations which may arise, and which offer in reality little difficulty if you will only follow the rules I have laid down.

By way of illustration of what I have been saying let us look for a moment at the case of this man before us. We will not consider his general symptoms. It is sufficient to say that in his case, as well as in the others of which I shall speak, there is good evidence, apart from the physical signs, that some actual lesion of the valves exists. When you listen over the apex you hear a loud murmur which is transmitted towards the left into the axilla. Time it at once, and you find it is systolic. Listen at the aortic cartilage and you fail to hear it, or hear it only indistinctly. All this points to a mitral systolic murmur, due to regurgitation through the mitral valve. What now are our corroborative signs? Percussion of the heart shows us that the right boundary reaches quite to the right edge of the sternum, indicating enlargement of the right heart. The heart is also enlarged somewhat towards the left, showing that extra work is also thrown upon the left ventricle. Then auscultation at the pulmonary cartilage reveals a second sound there, much louder than it ought to be. We have, therefore, no doubt at all about our case. It is an instance of mitral regurgitant murmur.

Here is a woman on the discussion of whose case I must spend a little more time. It is one in which I made the diagnosis of mitral stenosis before I put my ear to her chest.

That is, I assume neither a "snap diagnosis" nor an evidence of any great skill. You all may do the same. In the first place on putting my hand over the apex I feel a short and peculiarly rough thrill which comes just before the apex beat and runs into it. This is, of course, diastolic, and indicates that there is probably also a diastolic murmur to be heard in the region. The thrill is not felt at the aortic cartilage or, in fact, anywhere but near the apex. Then on percussing the heart I observe that the right side is very decidedly enlarged whereas the left side is not at all so. Now what have we found? A diastolic thrill limited to the apex, mere enlargement only of the right heart. Such an association is just what you might expect to find in mitral stenosis and makes me quite convinced that this lesion is present. Now on auscultation I find a loud, short, rough murmur just before and running up into the apex beat. It corresponds exactly in time with the thrill. It is heard only close to the apex. Auscultation at the aortic cartilage shows that the aortic leaflets are healthy. We therefore are absolutely confined to the diagnosis of a mitral diastolic murmur; the murmur of mitral stenosis.

As an instance of the method to be pursued when two murmurs exist in the same patient I wish to recall to your minds the interesting case we had before us a week ago. You remember that we heard a distinct, rather loud murmur over the second right costal cartilage. We timed it and found that it came with the apex beat. We heard it in the carotids. We concluded, therefore, that we certainly had to do with stenosis of the aortic orifice, producing an aortic systolic murmur. When, however, we listened over the apex we heard a murmur there also, and this too was with the apex beat. It was not a very loud murmur and was not very widely diffused, although heard in the axilla. Had we now two systolic murmurs, or only an aortic murmur which was widely heard? There was a little difference in the quality of the murmur heard at the two places, but not sufficient to be decisive. What could help

us out? That there really existed a mitral systolic murmur was indicated by the presence of a systolic thrill, limited to the region of the apex. This could not have been produced here by a disease of the aortic valves. Besides this, we had evidence on percussion that the right side of the heart was enlarged. Now that a mitral murmur should be heard loudest at the aortic cartilage and be propagated into the carotids was altogether different from what we have learned about these things. The conclusion was, therefore, unavoidable that two systolic murmurs existed; those of aortic stenosis and mitral regurgitation. As corroborative evidence was the fact that this case illustrated the condition of which I spoke to you a moment ago. When, namely, we traced downwards the murmur heard at the aortic cartilage we found it getting fainter and fainter until we neared the apex, when it seemed to grow in intensity until the apex itself was reached, where it was quite distinct. This finding of two such widely separated points of maximum intensity is a very useful means of determining the existence of two murmurs in the same case.

I might call to your remembrance others of the quite numerous interesting heart cases we have seen together. But what I have already said to you will, I hope, be sufficient to show you that the examination of cardiac cases is, after all, generally not such a difficult matter as it is often considered to be; if, only, we go about it in the right way. I do not want, however, to leave you with the idea that you will never meet cases which cannot be recognized by the method I have been teaching. There sometimes will come to your notice murmurs which are produced in curious and unusual ways; or others in which the various physical signs seem to be badly at odds. But these cases are comparatively exceptional, and I am sure that the general methods I have described will stand you in stead in the general run of cases.

THE DIFFERENTIAL DIAGNOSIS OF LATERAL CURVATURE. ABSCESS IN POTT'S DISEASE.[1]

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This patient, as you observe, has a lateral deviation of the spine. And yet he does not present the features of true lateral curvature, rotary lateral curvature or, what I have ventured to call idiopathic lateral curvature. I have called it so because it is a distinct disease, possessing characteristics which differentiate it from all other deviations, distortions or curvatures of the spine. It consists, first in a combined lateral deviation and a rotation of the vertebral column on its own axis, and secondly in a double curve, which from the resemblance which it is supposed to bear to the letter S, the Greek name of which is *sigma*, has been denominated the *sigmoid* curve. The features of this deformity which first attract the eye, and which are often first discovered by the dress-maker, are either an enlargement of one shoulder, generally the right, the scapula becoming much more prominent than its fellow, and the shoulder higher than the opposite shoulder; or an apparent enlargement of one hip. These conditions usually coexist and on the same side, but one is usually apparent much earlier than the other. This affection usually comes on about the age of puberty, and is very much more frequent in girls than in boys. This patient has not therefore reached the age at which we ordinarily expect to find the disease, and belongs to the wrong sex.

Moreover although the deformity has existed for a long time, we find little, if any rotation, and only a single curve. Under these circumstances we must endeavor to find some special cause for the distortion. The most probable causes for irregular lateral deviations of the spine as distinguished from true lateral curvature are congenital difference in the

[1] A clinical lecture at the Polyclinic.

length of the legs, acquired difference in the length of the legs from inflammatory disease of the joints, or obliquity of the pelvis from hip disease, myalgia or so-called rheumatism of the spinal muscles producing contractions either in the lumbar or cervical region, pneumonia or pleurisy followed by collapse of the lung in infancy, tubercular or carious disease of the vertebræ, commonly known as Pott's disease, inflammation of the sacro-iliac synchondrosis, injuries to the spinal muscles, spastic paralysis, infantile paralysis and rachitis or rickets.

Let us now proceed to discover if we can to which of these causes the spinal deviation before us is due.

In order to determine the comparative length of the legs it is necessary to place the patient on the back on a flat firm surface, as the floor or a table. Now measuring from the anterior superior spinous process of the ilium, to the fossa just beneath the internal malleolus on either side, we find no want of symmetry, and therefore exclude that cause. The movements of the hip and knee joints are perfectly free, there are no old scars in the neighborhood of these joints indicating that suppuration has ever taken place, nor is there any history of such inflammatory affections. In like manner, cervical or dorsal myalgia recurring with sufficient frequency or of sufficiently long continuance to produce decided distortion could not fail to be remembered and the patient has no recollection of any such periods of acute suffering. Auscultation and percussion fail to reveal any abnormality in the volume or permeability of the lungs, nor is there the marked and striking flattening of the thorax on one side which would result from collapse of the lung.

Is this then a case of lateral deviation of the spine from carious inflammation of the vertebra, or spinal arthrochondritis? Certainly not in its acute stage. To decide this we have only to notice the freedom with which the boy walks, the absence of the characteristic hunching up the shoulders, and turning in of the toes of one or both feet, and the ability to stoop and touch the floor bending the back in the act. If any of the vertebræ were the seat of an inflammatory pro-

cess, he would approach the object, which he desires to pick up side wise and reach it by bending the knee instead of the back. It might be however that he has at one time been the subject of Pott's disease which has been cured. Such a condition would be evidenced by a decided posterior projection more or less angular in character, and by anchylosis of that portion of the spine, whereas you notice that the curve is uniform, with no especially prominent spinous process and that when I cause him to stoop, there is equal mobility antero-posteriorly throughout the whole length of the column.

The instances in which lateral deviation of the spine is caused by injury to the sacro-iliac synochondrosis are more frequent than is generally supposed, for the reason that this condition is generally overlooked. You will find among the causes assigned for lateral curvature in the books, unilateral sciatica. Now in the majority of cases this sciatica is not the original cause, but is itself dependent upon an irritation of the nerves supplying the cartilages and ligaments of the sacro-iliac articulation, which have become inflamed or lacerated from some acute traumatic cause, usually either a fall on the hip or an excessive muscular effort. The sciatic notch through which the ischiatic or sciatic nerve emerges from the pelvis as it leaves the sacral plexus, is formed as you remember by the union of the sacrum and ilium, so that the inner side of the nerve lies directly against the lower border of this joint, and we may conceive that inflammation may be communicated to it by contiguity. However this may be, it is certain that intense sciatica is the result of an injury to this portion of the pelvis, and that this sciatica, overshadowing all other manifestations, diverts the mind of the physician from the real seat of the disease, and it is treated, as may be supposed with little success, as the disease itself. Now the spinal deformity resulting from this affection is altogether characteristic. The curve is single involving the entire length of the spine, and the entire trunk is displaced laterally upon the pelvis, producing marked difference in the apparent size of the two hips but little or

none in the prominence of the scapulæ. One shoulder, however is higher than the other and instead of being that corresponding to the side of the prominent hip, and of the injury it is the opposite one. In true lateral curvature, a plumb line let fall from the *vertebra prominens* or seventh cervical vertebra will usually strike not much to one side of the cleft of the nates, because the second or compensating curve, will have, to a great extent, restored the equilibrium of the body. But in this deviation it will be found to touch a point considerably outside of the central line of the pelvis. This deviation of the body is usually toward the side opposite to that which is the seat of injury. The gait of the sufferer is marked by shortness of step especially on the affected side, which gives an uneven roll to the walk, sometimes amounting almost to a stagger. Locomotion is often impossible. The sciatic nerve becomes sensitive to pressure all the way down the limb, even to its popliteal and tibial prolongations. This curvature disappears as the sensitiveness in the joint is relieved. It is true that the character of the curve in the case before us is somewhat similiar to that just described, but as there is not at present and has not been according to his statement at any time pain in the sciatic nerve we may dismiss this affection as a possible cause.

The deformities of the chest and trunk resulting from spastic paralysis, generally congenital and from the essential paralysis of infancy are very various and lead to irregular and often excessive distortions of the spine, but they are rarely so far recovered from as not to be present and to claim attention even to a more palpable degree than the spinal deformity. We find nothing of the kind here. I have seen several cases of curious spinal distortion in consequence of blows upon the back producing phlegmonous inflammation of the substance of some of the muscles which are attached to the spine. In such instances, the muscle which has been injured is apt to be very prominent, and the relation of the curvature to the traction of the muscle thus irritated is quite apparent. There is no history of any such injury in this

case nor do we notice any muscular tremor such as I have described.

We have therefore but one condition remaining of all those enumerated which we can assign as the cause of this distortion namely the disease known as rachitis or rickets. This affection, very common in Europe, is not so often seen in this country except in the colored race. It consists in impaired nutrition of the osseous tissue, with deficiency of lime salts, as indicated by late closure of the anterior fontanelle, depressions in the occiput, curving of the long bones, and enlargement of the epiphyses of the same. This enlargement is especially noticeable at the wrists, elbows and knees, and at the sternal ends of the ribs. In the latter situation it causes a succession of small round prominences along the sides of the sternum, to which the names of beading of the ribs, or the rachitic rosary have been given. The distortions of the spine caused by this soft condition of the vertebræ in early childhood are very various, presenting all possible combinations of lordosis, kyphosis and scoliosis, and of course sometimes closely simulating true lateral curvature. Now if we look at this boy's wrists we find that they are abnormally large as compared with the breadth of the hand. The other joints are not noticeably enlarged, but there is a tendency to pigeon breast or chicken breast, which is a characteristic manifestation of the disease under discussion. The boy's general nutrition is now good. He has outgrown the stage of faulty nutrition, and there is no likelihood of any serious increase of the deformity.

The treatment in this case consists as you see in the enforcement of exercises and postures which will tend to unbend the curves, to strengthen the weak muscles, and stretch those which are unduly contracted. The boy goes through a certain prescribed set of exercises here under the eye of the assistant and has also exercises prescribed which he is supposed to go through with daily at home. In point of fact very little dependence can be placed upon either patients or their parents for the faith-

ful prosecution of home treatment. Especially is this so with regard to the class of patients who come here; as the time of the parents and other older members of the family is so fully occupied that it is really impossible for them to attend to it. It is always my practice, however to furnish patients with my spinal swing for self-suspension, for home use. This can easily be put up over a door way, or attached to a joist in the ceiling. It is so arranged, by means of oval handles sliding on the rope that the patient drawing downward on one end of it makes traction upward on the chin and occiput with the other end. Taking hold of the highest handle which he can reach with the hand corresponding to the low shoulder, and of one about four inches lower with the other hand; he thus both unbends and untwists the curved spine. The use of this apparatus for ten minutes or more twice daily will produce decided benefit, and its presence in the house is a reminder of the duty.

It is, however, a matter of much importance to supplement the treatment by posture and exercise, by mechanical support worn upon the person. This may be a plaster jacket, or a jacket made of leather, raw-hide or porous felt, moulded on a cast made from a plaster jacket, or a steel brace. This boy wears a brace as you see. This brace gets its initial of force as must always be the case from the hips as a fixed point. From this, uprights pass up along the spine and both sides, giving support under the axillæ. The idea of the instrument-maker is to extend the spine by forcing up against the axillæ, and in this way to unbend the curve. Little or nothing can be accomplished in this manner owing to two facts. First, the difficulty of obtaining a sufficiently firm base from which to exert the upward force, since the circumference of the hips in children is scarcely larger than that of the waist, and secondly the extreme mobility of the shoulder joints which permits them to be pushed up to such an extent as to produce deformity, without in the least extending the spine. The brace may, however, exert a restraining force laterally and in this way preserve from day to day the improved position which we have procured by our exercises.

It is also of great value in preventing the patient from assuming those improper attitudes which serve to perpetuate the distortion and which he will always drop into if left to himself.

I need hardly say that the treatment of these cases requires the exercise of an immense amount of patience and perseverance, and that when the distortion has proceeded to any considerable extent, we shall not be justified in promising to effect complete restoration of symmetry. It is therefore of the greatest importance to detect them early. Such deformities are among the opprobria of the profession, because in their earlier stages when they might have been remedied they are almost invariably overlooked or neglected.

POTT'S DISEASE WITH ABSCESS.

The next patient you have some of you seen before. You remember the case as one of Pott's disease of the spine with a discharging abscess in a young woman. Before the abscess was opened the pus had been allowed to burrow around the outer wall of the pelvis on the right side until it had denuded the bone to a very considerable extent. In operating an incision was made the entire length of the crest of the ilium and the bone scraped where it was found eroded by the contact of pus.

This wound as you see has healed superficially to almost but not quite its whole extent. There is still, however, a sinus underneath it which is being treated by injections of glycerole of iodoform. This case was operated on in the surgical department and I have no doubt that the general conditions were such as to make operative interference necessary at the time. In fact the local condition described would indicate that it should have been resorted to much earlier. At the same time I wish to impress upon you the fact that an abscess in this affection, should never be evacuated until complete support has been given to the spine. The course of such abscesses after this has been accomplished is materially modified and they heal with surprising readiness. In this instance no attempt was made to afford such support

until the case came into this department when Dr. Wilson at once ordered it. Had the brace which you see her wearing to-day been applied a year ago, it is quite within the range of possibility that the abscess would have been absorbed.

THE AURAL SEQUELÆ OF ACUTE CORYZA.

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As chronic rhino-pharyngitis is the causative factor in the greater number of cases of chronic ear disease, so is acute coryza the exciting cause of most acute aural inflammations. Especially prone are the specific and septic forms of acute rhinitis which accompany measles, scarlet fever, and epidemic influenza, to produce severe aural lesions.

The ear diseases which most commonly follow acute coryza are eustachian salpingitis, acute myringitis, and both catarrhal and purulent inflammation of the middle ear.

Acute eustachian catarrh is a complication in almost every case of coryza, and may vary in intensity from a simple hyperemia of short duration to a severe septic inflammation, which may even jeopardize the life of the patient. Milder forms of salpingitis give no other symptoms than the well known "stuffed up" feeling in the ears, so characteristic of a common "cold." Examination of the naso-pharynx and the eustachian prominences shows a varying degree of swelling and congestion, with more or less mucous exudate adherent to the membrane. The ear drum may be retracted and the upper quadrant injected, or may show no evidence of the salpingitis present.

Treatment is highly satisfactory in these mild cases, frequently a spray of menthol (grains iv to the ounce of albolene) thrown into the anterior-nares is sufficient to relieve the discomfort at once, and a few repetitions of the application is all that is required. But if the turbinated and

pharyngeal tissues are much engorged the use of cocaine (5 per cent. solution) is indicated before applying the menthol, and a sedative spray of benzoate of soda, or potassium chlorate, may be used as a pharyngeal application by means of a straight atomizer through the mouth.

Typical acute eustachian salpingitis is characterized by pain along the course of the tube, deafness and tinnitus aurium, together with the characteristic feeling of tension already mentioned. The drum membrane is always retracted and congested, and the condition grades into myringitis and acute middle ear catarrh, so that any degree of inflammation or bulging of the membrana tympani may be present. The naso-pharynx may show active inflammation in any stage, but it is in the *second* stage of acute coryza that myringitis and acute salpingitis usually occur. If the drum and middle ear are extensively involved, pain is always a prominent symptom, and this disease may be said to be the common form of "ear-ache."

The first therapeutic indication in all cases of acute tubal inflammation, whether complicated by middle ear catarrh and myringitis or otherwise, is to relieve tension by opening the eustachian tube. As a rule this can be done by instilling 3 to 5 drops of a five per cent. solution of muriate of cocaine into the nostril of the affected side and allowing it to trickle backward into the pharynx. After about five minutes the nares should be gently sprayed with some mild antiseptic spray such as an 8 grain solution of boric acid or Dobell's formula, after which Politzer's inflation usually opens the tube and promptly relieves the aural symptoms. The entire naso-pharyngeal membrane should then be coated with an albolene spray containing menthol and camphor each iv grains to the fluid ounce. Subsequent daily treatments may be required for a short time to prevent recurrence, but cocaine should not be used after the first or second treatment, the secondary relaxation which occurs after its repeated use being decidedly deleterious. Bromide of sodium, with or without very small doses of morphine,

has an admirable effect when internally administered, and should be given in full doses when the attack is severe.

Acute purulent otitis occurs in cases of severe septic rhinitis whether resulting from ordinary coryza or, as is more frequently the case, from epidemic influenza, measles, diphtheria or scarlet fever. Pain is always a very marked symptom, and loss of hearing and tinnitis aurium are usually present.

On examination the tympanic membrane is found to be intensely gorged, bulged and swollen, the normal landmarks being usually obscured. If perforation has already occurred naso-pus will be found exuding from a usually ragged orifice. The naso-pharynx shows very marked congestion and swelling, and purulent erosions may be prominently present.

Treatment must be prompt and energetic in cases of acute septic otitis, as the pain may become unbearable, and the disease is always serious, not only to hearing, but to life.

Very mild cases, more catarrhal than purulent in character, may be relieved by the treatment above suggested, and this should always be tried even in severe cases. But when extensive swelling has occurred, the eustachian tube cannot be freed, and applications through the external auditory canal are indicated. Very gentle but prolonged syringing of the ear with water as warm as can conveniently be borne is a measure of great value, almost always giving great relief. The ear should then be carefully dried and *very lightly* dusted with boric acid, the drum being protected by it. Paracentesis of the drum is indicated when it shows great conjestion and bulging, and pain and high temperature are persistent; it should only be performed by highly trained and skillful hands. The hot irrigation and *light* boric acid insufflation should follow the paracentesis as in less severe cases, and treatment of the naso-pharynx must not be omitted. Elaborate treatment extending over weeks may be necessary after the painful stage has passed, and the persistence of pain may necessitate a resort to opiates for several days. On the other hand it is not unusual for cases

of violent pain and marked myringitis to subside after a single treatment, especially if the eustachian tube can be cleared.

In conclusion it may be said that severe attacks of acute coryza are always a serious menace to the organ of hearing, and such cases always demand early attention and skillful treatment if serious and permanent ear lesions are to be prevented.

NOTES ON URINE TESTING.

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Naturally, no human secretion or excretion has been more extensively studied than the urine and the compilation of the analytical results will fill a large volume. Practicing physicians, however, can make but few of the analytical examinations and among these stands pre-eminent, the recognition of albumin and sugar. The determinations of specific gravity and reaction are so simple as to need no description.

Albumin. Various nitrogenous bodies classed in albuminoids occur in urine, but the term is generally applied to that form which is coagulated by heat and certain dilute acids. The heat test as usually applied is not very delicate and is subject to a fallacy which may, however, be eliminated with proper care. Urine to which it is intended to apply tests should always be filtered, but a portion of the unfiltered urine should also be heated without the addition of any chemical in order to ascertain whether all or any of the suspended matter will be dissolved in the warm liquid. Such solution will indicate a turbidity due to uric acid or urates.

Nitric acid test. This method, commonly known, as Heller's test, is applied to the cold liquid. Expert manipulators usually perform the test by placing about a half inch of

strong nitric acid into a test-tube which is then inclined as nearly to the horizontal as possible and a moderate quantity of the filtered urine allowed to run down the side of the tube and flow over the acid. The tube is then cautiously brought to the upright position, and the action noted. It will be found, however, somewhat difficult for those not expert in chemical manipulations to get satisfactory results. The liquids are apt to mix instead of forming distinct layers. An easier method is, after placing the nitric acid in the test-tube, to allow the urine to filter on to it, adjusting the funnel so that its tip touches the side of the tube, by which means the filtering liquid will run down and spread on the surface of the nitric acid. The white zone which is characteristic of albumin will then be seen at the point of contact between the liquids. Urine having a specific gravity of over 1030 may with advantage be slightly diluted before filtration.

Metaphosphoric acid test. This test has not come into very extensive use, but my own experience with it, which extends over a number of years has been very satisfactory. There is some impression that it gives albumin reactions with all samples, but this is not the case. I have, at present, knowledge of at least two cases in which the presence of kidney disease was first detected through the test, although the urine had been very carefully examined by experts, with the ordinary tests. The manipulations are so simple that the test should always be used if merely as a confirmation. To apply it a piece of the solid metaphosphoric acid, about the size of a cherry stone is dropped into about an inch of the filtered urine in a test-tube. No heat is to be applied, and the tube is to be kept still. A white cloud forms around the pellet of acid if any albumin be present. In the absence of albumin nothing appears but a syrupy solution, which is *transparent* and ought, therefore, not to be mistaken for a precipitate.

The following test for albumin has been recently published and is said to be of great delicacy.

The urine is acidified with acetic acid and cautiously

dropped from a pipette into a solution of mercuric chloride (8 pts.) tartaric acid (4 pts.) and sugar (20 pts.) in 200 parts of water, when the presence of albumin is indicated by a sharp white ring at the point of junction. The sugar is used to increase the density of the fluid and with dense urines more sugar must be added to the testing liquid. Peptone gives no results.

Sugar reactions. As in the case of albumin, numerous tests have been proposed, but practically two are used; the copper and the bismuth tests. The copper test is well known but the bismuth test although the most delicate is not as largely employed as it deserves. For deciding absolutely on the absence of sugar or at least of appreciable amounts, the bismuth test affords the most satisfactory results. A good quality of bismuth subnitrate should be employed, and its suitability should be determined by testing it with samples of normal urine. The test is applied as follows: A pinch of bismuth subnitrate is added to the urine, ten or twelve drops of a moderately strong solution of caustic soda added, and the liquid boiled. Any sugar will show itself by the production of a distinct black precipitate which will settle rapidly. Mere grayish precipitates, are not to be considered indicative of sugar.

In applying the ordinary copper test, it must be borne in mind that the addition of sodium hydroxide to urine produces a flocculent precipitate of phosphates, which suspended in the brownish liquid may be mistaken for the red precipitate of cuprous oxide indicative of sugar, but the distinction is easily made if the liquid is allowed to stand until the precipitate settles, when its nature will be shown.

THE OCULAR COMPLICATIONS OF ERYSIPELAS.

By R. J. Phillips, M. D.,

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It is not remarkable that an inflammatory disease affecting by preference the tissues surrounding the orbit should

occasionally be attended by serious consequences to the sight. In the case of erysipelas these consequences are of two kinds, depending upon two distinct avenues of invasion of the visual apparatus: first, the direct extension of inflammation to the cellular or other tissues of the orbit, and, second, the circuitous introduction, by way of the general circulation, of lymph or other product of inflammation to the central artery of the retina, constituting an embolism of that vessel.

Of the former condition, the following case which the courtesy of Dr. Edward Jackson enabled me to see at his Wills Hospital clinic, will serve as an illustration. The patient, a fairly nourished man of seventy-five years, had lost the sight of the right eye from an accident in youth. The left eye had been good up to four months before his appearance in the clinic, at which time he had suffered an attack of erysipelas supposed to have followed upon a bruise of the forehead. The inflammation spread downward over the nose and cheeks. Two weeks after the beginning of the attack, the skin, which had ulcerated at several points, was beginning to improve, but there was tumefaction of the eyelids, the conjunctiva was inflamed, and the cornea slightly hazy. At this juncture the case unfortunately fell into the hands of an irregular practitioner who ordered a systematic course of poulticing, which was kept up for two weeks. The result was entire opacity of the cornea with a large perforation of its lower part, into which the iris protruded, reducing the vision to perception of light and of course involving the ruin of the eye. It was for this condition that he sought amelioration at the clinic.

Though the lamentable result in this case was doubtless in part due to the improper treatment to which it was subjected, the danger of sloughing of the cornea is always great where its nutrition is cut off by excessive conjunctival inflammation and chemosis. Especially is this the case when the subject has the poor general health and impaired vitality often preceding facial erysipelas.

The health of the eye may be farther endangered by orbital engorgement and cellulitis due to erysipelas. Dr.

Ziem, of Dantzig, in the *Muenchener Medicinische Wochenschrift*, reports a case which he regards as simple engorgement of the orbital contents, not due, it is true, to erysipelas, but to conditions which this disease is capable of causing. In this case the disease was a malignant intra-nasal growth filling the left half of the nose and naso-pharynx. The left eyelid was tumid and hanging down as if paralyzed. The eyeball protruded downwards, and was only very slightly movable. The conjunctiva was injected, and the pupil dilated and fixed. Dimness of vision was present in the right eye with venous hyperæmia of the retina. The left eye was the seat of severe pain. Intra-nasal injections helped to remove a large quantity of bad smelling pus and gave great relief, and continued treatment restored the vision almost to its normal acuity.

The success of the treatment made it plain that the case was not one of retrobulbar neuritis, but that the interior of the eye became congested through the swelling of the nasal mucous membrane. In the words of Dr. Ziem, the restoration of normal nasal respiration, and increase of the respiratory capacity of the lungs, re-establish free circulation in the vascular system of the nose and neighboring organs as well as in the rest of the body, so that after the depletion of the orbits, the eyeballs and ciliary bodies, the current of blood becomes normal again within the retina and optic nerve, and restores the function of these organs. In connection with this case it should not be forgotten that in erysipelas we sometimes have swelling of the lining membrane of the nose and throat so great as to interfere seriously with respiration, and indeed in some instances to cause death by apnœa.

Where the orbital condition is not engorgement merely, but cellulitis, the symptoms differ principally in degree and persistence from those detailed in Dr. Ziem's case. The onset of this complication is usually marked by increase of temperature, or a partial relapse if the patient is recovering. Aside from the swelling of the lids and chemosis, orbital cellulitis is usually attended by violent pain both in the

orbit and its neighborhood. This pain is increased by pushing the protruding eyeball backward. The range of movement of the eye is diminished in all directions. The pupil is usually dilated, and the cornea often anesthetic. Vision remains good unless optic neuritis results, and the subsidence of the disease, usually with the formation and escape of pus through an opening either in the skin or conjunctiva, brings about a restoration to the normal state. It should not be forgotten, however, that this disease sometimes has for a sequel optic neuritis followed by atrophy and consequent complete loss of sight in the affected eye.

Very different from this picture is that presented in the following case which occurred in the practice of my neighbor, Dr. W. O. Higgate, through whose kindness I was enabled to see it. The patient was a rather debilitated man in the forties, suffering from his first attack of facial erysipelas. The disease was not particularly severe and presented no peculiar features beyond great swelling of the lids of the right eye, the conjunctiva of which was, however, not affected to an unusual degree, at least its ocular portion did not become much chemosed. The swelling of the lids was sufficient to close the eye for several days, and on its subsidence the organ was found to be completely sightless. No particular pain or other sensation in the eye had been observed by the patient, nor was it at all changed in outward appearance. At the time of my examination, some months after the occurrence, the appearance of the fundus was simply that of optic atrophy. Doubtless an early inspection would have revealed the pale optic disc and shrunken arteries, the peculiar, soft, grayish white appearance of the retina, and the "cherry red" spot at the macula, typical of recent embolism of the central artery.

This is quite the usual history of these cases; the eye attracting very little attention to itself until the abatement of swelling or some accident leads to the discovery of its blindness. When it is considered, as has been clearly ascertained, that in embolism the crumbling fragments of morbid products in the veins at any seat of inflammation

are first washed by the blood stream towards the heart, there meeting the currents from all parts of the body, the chances of such a small organ as the eye receiving in its interior an embolus formed perhaps only an inch away, will be seen to be slight. And yet these cases are not so very rare. This consideration, though I know of no direct evidence to support the supposition, leads one to conjecture that possibly not all of these fibrinous plugs have made the journey to the heart and returned, but that some of them have been formed at the point where their presence is made manifest.

The treatment of the ocular complications of erysipelas will not differ materially from that of the same conditions due to other causes. Dr. Ziem has shown how the reduction of nasal occlusion may reduce orbital engorgement. Orbital cellulitis will require remedies for the relief of pain, and provided the cornea is in no danger of infiltration, local applications, as poultices and warm fomentations to hasten the formation of pus, which should, of course, be evacuated as soon as its presence is certain; preferably by an incision in the conjunctiva.

It is when the cornea is invaded that the power of treatment for good or ill is greatest. Under such circumstances reliance is to be placed upon the most generous support of the general system and meeting the varying local indications as they arise. For the former purpose, liberal doses of quinine and iron, fresh air, suitable food, supplemented perhaps by a moderate amount of milk punch, are to be recommended. Among the principal local remedies are cleansing washes, watery solutions of atropine (gr. iv to ℥j), eserine (gr. ¼ to ℥j), nitrate of silver (gr. x to ℥j), and the galvanic or other actual cautery.

Of cleansing washes, a very good one is boiled, distilled water. It is useless to saturate this with boracic acid as is often done. As this substance has been ascertained to be inert in this connection, its presence can merely serve to attract attention from the careful preparation of the really useful ingredient of the prescription; the water. Where the

nutrition of the cornea is impaired, solutions of the bichloride of mercury are to be used with caution, and in not greater strength than about 1 to 8000.

When there is not much discharge from the conjunctiva, and the cornea is as yet intact, a bandage may promote rest and be useful. When, however, the secretion is free, and especially if the cornea is suffering, to shut the eye up in a poultice of its own septic and superheated secretions is illogical and disastrous. Free and frequent washing out of the sac with water or with the weak solution of bichloride, the daily application to the conjunctiva of solution of nitrate of silver (the excess being immediately washed away), together with instillations of atropine solution, provided it is not otherwise contraindicated, are the best means of effecting speedy relief. Should pus form in the subconjunctival tissues, its evacuation should not be delayed.

If, in spite of these measures, a large portion or the whole of the cornea becomes involved in a slough, our efforts should be directed to the removal of debris and the usually vain endeavor to keep the iris out of the resulting perforation. For a slough or ulcer of moderate size no other treatment compares in results with that by the actual cautery. This may be preceded by the gentle removal of material that is evidently dead. A drop of watery solution of fluorescein (2% with 3.5% of carbonate of soda) is then allowed to flow over the cornea, staining all ulcerated surfaces a bright green, as has lately been so often described. The stained surface is then to receive a light, quick touch over all portions of its extent with the cautery. In the absence of a galvanic cautery almost any blunt pointed instrument, as a strabismus hook, or even a knitting needle, heated in the flame of an alcohol lamp will serve the purpose.

Atropine is usually of great use in corneal ulcer, as it places the eye at rest and lessens the tendency to iritis and cyclitis. Where the ulcer is central on the cornea, atropine withdraws the iris from its immediate neighborhood and lessens the danger of its adherence to the inflamed tissue. In the cases under consideration, however, its employment

must be cautious, as glaucoma following erysipelas is not unknown. If there is the slightest tendency to hardness or increase of tension in the eyeball, atropine is to be avoided and eserine employed. The latter remedy is also indicated on mechanical principles when there is an ulcer involving the cornea near its periphery. The contraction of the pupil which it brings about withdraws the iris as far as possible from the seat of disease and danger.

In embolism of the central artery of the retina little can be done. Usually the ultimate result is atrophy of the optic nerve and consequent complete blindness. A few cases of recovery are recorded in which the result was apparently brought about by manipulations of the globe consisting of alternate pressure and release, by which means the embolus was dislodged from its position and either disintegrated, or carried to some more remote vessel. These procedures should, therefore, be given a trial.

THE PROPHYLACTIC AND PALLIATIVE TREATMENT OF FISTULA IN ANO.

By Lewis H. Adler Jr., M. D.,

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Treatment of abscess.—Preliminary to considering the treatment of the disease when the fistulous track has been formed, it will be necessary to devote some attention to the importance of dealing promptly with the inflammatory and suppurative process which leads to abscess and usually forms the first stage of the affection, known as fistula in ano.

When a patient presents the symptoms of a threatened abscess in the vicinity of the rectum, he should be directed to go to bed, or, at least to avoid all undue exercise, and the bowels should be thoroughly evacuated, preferably by the use of a saline cathartic; the diet should be nutritious and, if the case is seen early, hot fomentations and poultices may be applied to the parts. The early adoption of these meas-

ures may abort the threatened abscess, and the patient may make a prompt recovery.

If, however there be grounds to suspect that matter has formed or is forming, it will be advisable to make a free incision into the center of the affected site with a sharp curved bistoury, if the trouble is superficial; or, if it is deep, with a narrow straight knife. When pus is present and is deeply seated the evacuation of the abscess will be aided by the introduction of the forefinger into the bowel, by which means the swelling may be pushed forward, rendered tense, and hence be made more apparent.

In opening these abscesses, if possible, ether should be given. The patient should lie on the side where the threatened abscess is situated; the upper leg should be bent forward upon the abdomen. If pus is present, the operator should stand out of the line of its exit, for it often squirts out a considerable distance, when the cavity is opened.

After the matter has been discharged, the forefinger should be introduced into the abscess-cavity for the purpose of breaking down any secondary cavities or loculi. When this has been thoroughly accomplished, the abscess should be thoroughly washed out with peroxide of hydrogen (Marchand's, undiluted), after which a rubber drainage tube should be inserted, or a piece of iodoform gauze should be lightly placed between the lips of the incision, to prevent its closing too rapidly and also to allow free drainage.

Careful daily attention should be paid to the wound while the cavity of the abscess is contracting, as it is important to maintain a free and dependent outlet for the matter which continues to be secreted; but all stuffing and distention of the cavity should be carefully avoided. If a drainage tube is used, it should be shortened from day to day, as the walls of the abscess contract. After an operation for rectal abscess, the patient should be kept quiet for several days, and if great care be taken, both with the subsequent drainage and keeping the external orifice open, the part may heal without the formation of a fistula.

Palliative Treatment of Fistula in Ano.—This method of

treatment will be required in cases where there is a positive unwillingness on the part of the patient to submit to an operation, and in persons whose constitutions are broken down by disease and in whom the reparative powers of the body are not equal to the task of restoring it to health. Chronic alcoholism, albuminuria, diabetes, malignant disease, etc., are illustrations of cases in which operative procedures are attended with risk, and in which instances palliative measures should be tried. Phthisis is not an absolute contra-indication to operative measures. The rule which I observe, is to operate in those cases in which the disease is quiescent, but to avoid such interference if the lung mischief be at all active.

Incomplete external fistulæ, and even complete fistulæ, which are of somewhat recent origin and not extensively indurated, may be cured by non-operative measures; but such treatment requires the most constant and careful attention on the part of the practitioner as well as a willingness on the part of the patient to give up a sufficient time to the treatment. Even under such circumstances, the process of repair is slow and in many cases the result will not be perfectly satisfactory. It is true that fistulæ sometimes recover spontaneously, or, are cured by simple means; such as the mere passage of a probe used in examining the fistulous track, but such cases are rare.

In certain selected cases of fistulæ I am in the habit of endeavoring to effect a cure by stimulating the sinus and allowing free drainage of the secretions, in order to avoid the use of the knife. To accomplish satisfactory results with this mode of treatment, the following principles should be carried out: (1), see that the external orifice is perfectly free; (2), that the sinus is kept as clean as possible, so as to prevent putrefactive changes; (3), that an effort be made to excite a healthy action in the fistulous channel; and (4), that the parts be kept as quiet as possible.

To accomplish the first indication, it is necessary to dilate the outer opening of the fistula with *sponge-* or *sea-tangle*

tents; or better still for this purpose, are the Lee's antiseptic slippery elm tents.[1] These are made of selected slippery elm bark and are compressed. Owing to their non-irritant and demulcent properties I find them superior to other tents.

The second principle, that the sinus be kept as clean as possible to prevent putrefactive changes, is best maintained by the use of peroxide of hydrogen. I have cured some cases of fistula in ano by means of injections into the sinus, of peroxide of hydrogen alone, being careful to keep the external opening free and treating the patients daily until healing occurred. I am in the habit of using Marchand's preparation, undiluted. It is injected into the sinus by means of a long flexible silver canula attached to a hypodermatic syringe.

Other antiseptics may be employed for the same purpose, such as the bichloride of mercury (1 to 2000) or carbolic acid (1 to 80), but I much prefer the peroxide of hydrogen.

The third indication, to excite a healthy action in the sinus, can be met in one of a number of ways. In the first place before applying such remedies it will be well to obtund the sensibility of the channel by an injection into the sinus of a four per cent. solution of cocaine. This may be accomplished by using the same syringe and canula as is employed for cleansing the fistula.

If the wall of the sinus be somewhat indurated it is better to insert a small flexible curette and scrape the track of the fistula along its entire length. The sinus is now prepared for the application of some one of the various stimulating substances which have been recommended for this purpose. Among this number may be mentioned peroxide of hydrogen; nitrate of silver, either fused or in solution (30 to 60 grains to the ounce); sulphate of copper in solution (10 grains to the ounce); carbolic acid mixed with equal parts of glycerine and water.

These substances may be applied to the fistulous track by means of cotton attached to a silver probe or to an applica-

[1]Made by J. Ellwood Lee Co., Conshohocken, Pa.

tor, or else they may be injected into the sinus by means of a syringe and silver canula, to which reference has already been made. If the fistula be a complete one and the substance used be applied by injection, the finger should be passed into the rectum and be made to cover the internal orifice of the sinus so as to prevent the escape of any of the fluid into the bowel.

Regarding the fourth point, keeping the parts at rest, the patient, whilst under treatment, should be confined to the horizontal position, either in bed or on a sofa. Congestion of the parts is thereby lessened. A firm pad, placed over the anus and well supported by a T-bandage, is useful, in my experience, for the purpose of limiting the motions of the anus due to alternate contraction and relaxation of the levator ani.

The chance of success in the treatment of fistula in ano is greatly increased, if due attention is paid to the general state of health of the patient, and when possible, the individual is directed to seek the benefits of a change of air.

NOTES ON SHOCK.

By Harris A. Slocum, M. D.,

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Gentlemen :—I shall not attempt to give you a text-book description of the symptoms and causes of shock, for you are all well acquainted with them, but will consider with you, different phases of the subject—some theoretical and others practical—the latter relating to points in treatment which have been given by men who have made this a study. Among those who have written upon the subject are Travers, Goltz, Brunton, Savory, Cheevers, Packard, Dercum, Guy, Todd, Ashhurst and Mansell-Moullin. Some of these writings are sketchy, relating to special aspects, while others are encyclopædic. Each exhibits certain facts gleaned from experience, and they present advancing stages in our knowledge of the subject.

The three principal dangers which threaten a case needing an abdominal section are hemorrhage, septicemia and shock. The means for combating the first two are becoming more and more efficient, and both have in a measure, passed through rather similar stages of advance from complex, to simple methods. The third factor is a more difficult one to cope with, and although many cases experience a slight degree of shock and recover without apparent harm, yet when severe shock is marked, it offers one of the most difficult, and sometimes the most hopeless contingency with which the surgeon has to contend.

I have just intimated that many cases may experience a slight degree of shock without harm. If I were to express my true convictions, I should say that in nearly every case of abdominal section when handling of the intestines—or an operation upon any of the abdominal or pelvic viscera, has been done—symptoms may be observed which will indicate that the first step towards shock has been taken. But, until these have reached a certain degree of severity, their true character is rarely recognized; nor, in view of the fact that they are very evanescent—the vaso-motor system soon recovering its normal tone—is their recognition truly essential, or failure to recognize them detrimental to the patient. I am confident that many patients pass quietly within brushing distance of the danger line, and are often unconsciously kept from it by the constant, assiduous care exercised in the after treatment, which dates immediately from the finishing of the operation.

Among the van-guard symptoms to be watched, I would place the vomiting which occurs when the patient is recovering from the ether. This ordinarily ceases within twelve hours, gradually diminishing in frequency and severity, while some patients do not vomit at all. Yet at times we see this expected, ordinary occurrence, continuing in spite of all measures to check it, until the patient sinks in collapse. I do not believe that in these cases it is the ether that kills, for a time comes when

its odor disappears entirely—it has all been excreted. It seems rather to be due to a shock-nausea from some traumatism in the operation, which quietly merges into that of the ether and brings about the untoward result. The shock is not due to the vomiting, but the vomiting is continued on account of the shock. A rapid pulse—a pulse far above ninety—after an operation which has been long enough to ensure the passing of the primary stimulating effects of the ether, is a symptom which should be suspiciously watched. It is one which would cause me great uneasiness, particularly if accompanied by pallor of the surface, even though the patient talked rationally and complained of no discomfort.

If we search to the very bottom facts, eliminating all incidental and sequential symptoms, we will see that the proximate cause of death in shock is heart failure. When this is brought about by a cause which acts persistently over a space of time allowing these incidents and sequences to occur, there are then presented the typical phenomena which are constantly associated in our minds with the word "shock," i. e., pallor of surface with lowered temperature, and an outpouring of perspiration constituting the "clammy" feel to the skin; the shallow respiration and increasing anesthesia of the surface, due to the waning blood supply to the medulla and the sensorium, and all the results which one would expect to follow the gradual but increasing weakening of the circulatory apparatus, such as confusion of thought, faintness, vertigo, muscular tremors, a feeling of oppression, anxiety, nausea and many others, very greatly modified in severity, variety of symptom and order of appearance by the acting cause, and also by the mental traits or characteristics, or in another word, the idiosyncrasies of the patient. When this acting cause has been inordinately severe or the mentality of the patient is such that an emotional impression is superlatively strong, enough time does not elapse between the inception of the disturbing factor and its ultimate result to allow these modified physiological sequences to occur and then we have

sudden or instantaneous death. As an example of the first kind,—the severely acting cause—may be mentioned death from lightning; and Brunton's case fully exemplifies the second—mental impression—where a janitor having been brought to a summary court of justice by a number of students, and forced to lay his head blindfolded upon a block, fully expecting to be decapitated with the axe, instantly expired upon being struck on the back of the neck with a wet towel.

Shock is a parallel of the manifestation of fear in the sympathetic system, the vaso-motor system, that system which is not directly controlled by the will but *is* directly controlled or affected by the cerebro-spinal system; and may be experienced by an individual who is entirely outside of surgical attack, and to whom the disturbing afferent impulse is carried through the second or other pair of cranial nerves. Witness the pallor and faintness, the rapid pulse and cold perspiration of a so-called sensitive person who is for the first time assisting at an operation.

I was recently called to sew up a wound of the nose extending down to the bone, from which a small scale had been chipped and was lying connected with the nasal bone by a shred of periosteum. My assistant was a man who was unaccustomed to such sights and although he had only to hold a glass beaker containing a solution of bichloride of mercury, when a pair of forceps was used for the purpose of grasping and removing the scale which was deep in the wound, I glanced up and saw this assistant turn deadly pale, and stare with wide-open eyes away from the patient, while his face was covered with sweat, and the typical effects of a momentary shock were plainly visible in his countenance. This was increased when the needle was introduced into the skin for the purpose of placing the sutures. If this condition had been brought on by a traumatism which had injured the nerves, these symptoms would have remained longer, and would have given time for the temperature to lower, and the development of just so

many more shock symptoms as the degree of injury and the sensitiveness of the man would have invited. Here was an instance of an attempt at a profound impression upon the ganglionic, through an afferent branch of the cerebro-spinal system, and, just as this impression was conveyed through one of the nerves of that system which happened be in close connection with its upper part—the sensorium—so may we have a correspondingly powerful impression carried by any one of the lower branches, but with this difference in mode of action. The optic nerves are stimulated only by light waves, the spinal nerves only by contact or conducted cerebral energy.

An ordinary irritation is transmitted to the spinal centres and thence to the sensorium, and such action is immediately taken as will tend to remove the irritant or lessen its power. If circumstances should be such as to give the instant impression to the sensorium that this cannot be done, no matter for what reason, whether it is a sense of duty in the surgeon's assistant, the conviction of unavoidable suffering coming or to come, or the feeling of total and utter helplessness, at the very moment of its happening, in the man struck by lightning or crushed between cars, or the sensitive woman who knows that she *must* undergo a mutilating operation or lose her life, the inhibitory function of the cerebrum over the spine and sympathetic system becomes confused. It has conveyed the impression of danger, but is helpless to point out the means of escape, and the automatic reflexes being intensely stimulated but not guided, result in changes in the circulation which, if considered in their beginning, would probably be seen to be specifically adapted to meet the emergency, but being deprived of their habitual necessary adviser, persistently continue in the path wherein they were started, and exercise their function to a painful extreme.

Maudsley, in "Body and Mind," says that "reflex movements which commonly effect a useful end may, under the changed circumstances of disease, do great mischief, becoming even the occasion of violent suffering and of a most

painful death." The termination may be: *a.* Restored coördinated function, either through an entire removal of the primary disturbing cause, or a prompt recovery of the guiding centres: *b.* An indefinite continuation of the symptom with more or less fluctuation, either from the inability of those centres to resume perfect control, or through persistent though modified action of the threatening agent, as in continued shock from any cause, railroad shock and ether shock. (This term I apply to those who present certain nervous phenomena which have developed after ether anæsthesia and sometimes persist for years.) *c.* Progressive inability of both ruler and ruled to meet the condition, with resulting death. Just what is the mechanism in the causation of shock, cannot be told by rule, for the exciting causes may be the most diverse in character, such as extensive burns, the swallowing of strong mineral acids, the passing of a catheter, a railroad accident, (and here too the patient may have apparently escaped all injury) the bursting of an anuerism, a simple lacerated wound of the arm, abdominal section, and a host of others. If we take Cheever's description of the degrees of shock, and it is a fairly accurate grading of this variable condition, we will see that there occur: apprehension, fluttering, sweating, chilliness, pain, vertigo, nausea, faintness, convulsions, unconsciousness and collapse. These various grades of shock conditions have been accepted by writers of the present day, and we may consider them accurate. If we wish to arrive at a true interpretation of the symptoms of shock I believe one of the ways of effecting our aim is to investigate the underlying principles of the very earliest ones, those constants that are observed to uniformly accompany its beginning, just as we search for the simplest form of kidney or other organ to be found in the animal kingdom for the purpose of throwing light on the more complex kidney of man, in order to fully understand its mechanism and therefore its diseases.

If time permitted, it would be interesting to study those phenomena in detail and build up their natural history,

but I will only call your attention to two: apprehension, or fear, and nausea and vomiting, and these only in their very beginnings as illustrated from various sources.

Apprehension: the first one mentioned by Cheever, may be observed in some of the lower vertebrates. I have often tried the experiment of startling chickens while quietly feeding, to see what their first action would be, and have found this to vary with the character and intensity of the stimulus. If this is slight, they will merely lift their heads to an intently listening attitude; if a little greater, they will at once start in a quick but orderly manner to move away, but if the sound is of such character as to strongly frighten them, it will cause them to almost drop to the ground through a partial momentary paralysis of the lower extremities. In the first and second instances they adopt means calculated to remove them from danger. In the third their movements are started but carried to extremes and result in actions that fail in their purpose when the danger seems so great as to close all apparent avenues of escape. It is the germ of despair.

Horses will shy and jump from an unexpected object in the road. That is to say, they will remove their bodies as far as an instantaneous movement will permit, from something which appears to threaten their safety. If intensely frightened they will stand still and tremble, the trembling evidently due to incoördinated efferent impulses sent in quick succession to flexors and extensors, valueless in the emergency and failing through indecision of the guiding centres, under excitement which, if continued and increased would end in their ceasing altogether.

Nausea and Vomiting:—The act of vomiting has evidently been established as a safe-guard against the retention of deleterious agents in the stomach which would threaten the organism with danger. It is also possible that it might be an atavic legacy along with our molars from a ruminant ancestor, and only exercised under exceptional circumstances. No plausible reason presents itself however, for

the latter explanation, but I think in the former we may find the *rationale* of gastric disturbances indicated.

To illustrate the deeper or graver forms, I will cite a few instances of the milder ones. A boy was walking in the street when he was suddenly struck on the back of the left hand by a piece of brick thrown by one boy at another; the pain was severe but not intense, still the blow was hotly resented in the sufferer's mind. Within five minutes although the pain had almost ceased, and not more than five or six drops of blood escaped, he was suddenly nauseated and promptly vomited the contents of his stomach and was well at once. A gentleman received most depressing news, two hours after breakfast, when digestion was progressing normally. In a few minutes, acute indigestion occurred with nausea, though vomiting was prevented by prompt remedial measures, but he did not regain his normal digestion for several days. He probably would have done so more quickly if he had vomited.

An infant, nursed by a wet nurse, was observed to suddenly present symptoms of a grave illness, the symptoms being extreme pallor, rapid pulse, lowered temperature, indisposition to nurse, shallow respiration and an absence of all voluntary muscular movements. The child slowly improved under general stimulating treatment and within a week was entirely well. Several weeks after, the same symptoms appeared, the child vomited and recovered more quickly than before. It was then learned that immediately preceding both attacks the nurse had been in a towering passion and had nursed the baby within an hour afterward.

Although of widely different characters, we see one special characteristic present in each of these cases. In each, due to mental action, disturbances in the digestive, or other glands, had occurred with the probable formation of a poisonous product which either resulted in clearing the stomach, in which case recovery was prompt, or in systemic infection by the retained material with slow return to health.

I do not hold that the mental action *per se* caused the vomiting, but when, all things being favorable, the extreme nerve impulses are carried along nerve lines offering the least resistance, such trophic changes may be effected as will result in the formation of toxic principles which the digestive canal endeavors to reject. In the case of the boy and the man cited, it was formed in the individual, while the baby suffered because the line of least resistance in the nurse happened to be towards the active plethoric mammary glands.

Turning now to shock, the same excitant which so strongly affects the pneumogastric and the splanchnics causing an aberration in their function, may easily be transmitted as well to the stomach (and as the animal mind acts with great rapidity under threatening conditions) it is reasonable to infer that this does at times take place resulting in the protective measure of vomiting, as anticipating the result of such action of the cerebrum upon the digestion.

These are cited simply to illustrate the line along which these earliest symptoms might, with advantage, be investigated, supplementing laboratory experiments, and supplying sequential data if followed out, which the latter could never furnish. Ashhurst states that "in a slight case of shock there may be a momentary, almost imperceptible change of color with a feeling of sinking in the region, and perhaps slight qualmishness."

Many soldiers on entering their first battle are suddenly seized with nausea and vomiting, with the same feeling of sinking or with the expulsion of flatus through a relaxed sphincter or an actual movement of the bowels. An English journal has recently shown that many people attacked by cholera, die of fright. "Wounds of the testicle are frequently accompanied by a state of shock much more marked than can be accounted for by the severity of the injury." Erichsen has observed "that at the moment of division of the spermatic cord in castration, the pulse sinks, even though the patient has been fully anesthetized."

Injuries to the ovary are resented by the body with equal accentuation. I was operating upon a case of hematocele of the left ovary and asked my assistant to examine it. While making the examination he ruptured the cyst and at the same instant the etherizer remarked that the pulse dropped in power and increased in frequency.

These changes connected with traumatisms in the testicle and ovary are due to the fact that the spermatic nerves are derived from the renal plexus, which is directly formed by filaments from the solar plexus and the semilunar ganglion, and then receives the splanchnics and the termination of the right pneumo-gastric, making a short connection with the powers that both dilate the veins of the abdomen and lessen the power of the heart, the principal ultimate factors in producing shock.

All these are true shock phases, arising from various conditions, some communicated through cerebral and others through spinal or sympathetic fibres direct, but all acting ultimately through the *latter*, and are probably reflex protective means carried to extremes. This seems probable because reasoning by analogy from the reaction of all involuntary tissues we are led to believe that the phenomena exhibited in them under such circumstances are manifestations of the fundamental principle of organized beings to resist harmful influences and to bring into action such powers as they may possess, either to avoid or to quickly limit or annul them.

Treatment.—Let me impress upon you the value of preparatory treatment in gynecological operation. Mansell-Moullin says, "Whatever may be the immediate cause of shock, whether it result from a purely mental source, or from a serious bodily hurt, (for probably either alone is sufficient, although in general each bears a share) everything denotes diminished energy of circulation." I start from this, "whether it result from a purely mental source." Begin with the mind. Give the patient every possible legitimate assurance that she will recover; strengthen her confidence, allay her fears. If she holds to strong, odd

fancies yield to them as far as her safety permits. Reason with caprices but treat superstitions carefully. Many patients look forward with terror to an operation that is to be done on Friday. When this is the case I should not hesitate to change the date, and have done so to the evident relief of the sufferer. To know the bias of a patient's mind, and to allay her apprehension, is a long step towards preventing shock. This steady state of mind was obtained in his patients by a surgeon of my knowledge who, after deciding in his mind that an abdominal section was necessary, would tell them that some little thing was wrong and that he would give them a few drops of ether and rectify it. His words had so little to alarm that the patients never knew till long afterward the risk they had run, but they rarely had shock. I would not advise such a policy, but cite it as an occurrence which impressed me at the time by the utter absence of fear in the women, and the concomitant rarity in them of grave shock, although many of the operations were severe.

Although free bowel movements are so essential in preparing a case, hypercatharsis should be avoided. If not alone capable of inducing shock, it is at least a powerful adjuvant in inviting it. Care in the administration of the ether is of the greatest importance, and it should be entrusted to a man who knows how to administer it, how to meet emergencies, and, in whom the operator has such confidence that no thought is given to it. Undue exposure of the abdominal walls should be carefully guarded against, and dry sterilized instead of wet antiseptic towels placed around the site of the operation.

The operation itself should be done as rapidly as is consistent with thoroughness, and the viscera disturbed as little as possible. The ovaries and tubes should be handled gently with no unnecessary pinching. Intestinal complications increase the chances of shock, and if they occur, anti-shock precautions should be more strenuously carried out. Among these, hot water irrigation of the abdominal cavity or large quantities of hot water (105°) slowly injected into

the bowel, seem particularly indicated, as one of the most direct and practicable methods of stimulating the great vaso-motor constrictors of the abdomen—the splanchnics. Brunton says, that "the intestinal vessels are so capacious that when they are fully dilated they can hold all the blood in the body," and post-mortem examinations after death from shock show great distention of the abdominal veins.

Dercum has recommended a preliminary rest in bed for several days for the purpose of quieting the nervous system and accustoming the patient to her surroundings. He also advises the administration of a hypodermic of strychnia at the end of the operation—a measure which I strongly endorse—and the use of a rubber bed filled with hot water when shock has developed as being a much better method of applying heat than with hot water bottles or bags. If the operation promises to be a severe one, I believe it would be a great advantage to have the patient on such a bed during the operation. Dercum also calls attention to the use of musk in the treatment of shock, and advises its administration by the rectum with thin mucilage in 15 grain doses.

When shock has fully developed the treatment will be directed toward restoring the integrity of the vaso-motor system. The heart beats more and more rapidly and its power steadily diminishes. The hands and feet become paler and colder. In some cases the mind is clear, in others a species of mild delirium occurs, the "prostration with excitement" of Travers. I have seen both, and feel that the latter is the more serious of the two. Just what it is that determines the occurrence of the one rather than the other is obscure, though in the cases I have observed, the erethistic or excitable form has occurred in patients who have been greatly harassed and troubled by contentious family relatives, which possibly produced a relaxation of the cerebral capillaries, with ultimate passive hyperemia and aberrant function; while these preceding conditions have been entirely absent in the former. Digitalis has succeeded at

times and failed at others. Yet it should always be given a trial if other methods fail. Upon physiological grounds nitro-glycerin should be of service by dilating the capillaries and thus lessening the resistance to the heart. As Mansell-Moullin says, "the heart is not paralyzed because it is dilated, but is dilated because it is paralyzed." Stimson advises the hypodermic use of atropia before the administration of nitro-glycerin. Whiskey to the amount of semi-intoxication has also been given with good results.

Brassler refers the primary seat of shock to the nervous centers in the medulla oblongata, presumably causing pronounced anemia of these centers. Strychnia physiologically antidotes this by congesting them and is of unquestionable service. I have used it, and with success, in doses of gr. $\frac{1}{20}$ every 4 hours, continued for five days in a case of pyosalpinx in which the tissues of the left side of the pelvis formed one solid agglutinated mass, which I carefully dissected out, using the Trendelenburg position, and which was followed by severe shock and subnormal temperature for many days. The patient is now entirely well and attending to her duties, and I feel that she owes her life to the strychnia. I want to lay particular emphasis upon the value of strychnia. The dose in this case was regulated to the amount and frequency stated, as this appeared to answer the indications, but if the system had not then responded, I should have given it in a twentieth or a tenth of a grain every hour if necessary, and should have felt very little fear of poisoning. I think it ought to be persistently used until some physiological action occurs, and the first one that I would look for would be a slowing and strengthening of the pulse. Early and McGuire recommended large doses of quinine before operation.

Bandaging of the limbs has been mentioned as a method of filling the upper blood vessels. A large compress with the application of a tight bandage to the entire abdomen or direct pressure upon the abdominal aorta, would seem equally serviceable in forcing blood to the medulla, and out of the abdominal veins.

As a means of learning more about the phenomena of shock, I believe that if a sphygmograph and recording cylinder were placed upon the wrist of a patient about to undergo an abdominal section, and a time sheet so arranged as to indicate the exact moment when each change in the pulse occurred while an assistant stood by who gave his full attention to noting accurately and minutely the steps of the operation, all the handling thereto, and the exact moment of their occurrence, we would be able to collect data of the greatest importance concerning the causation of shock in abdominal operations, and when these were tabulated and their significance understood, they would serve as an index of the immediate treatment to be used, and would thereby help to lessen the mortality by shock in these operations.

In those instances where major operations are reported to have been done while the patient was under the influence of hypnotism it would be a matter of interest to know whether there were manifested any of the symptoms of shock, for here we could exclude entirely any possible masking effects of the anesthetic.

Summary: It seems to me that the following suggestions for an abdominal section are reasonable, and well worth the trial. *1st. To keep the patient warm during the operation*, and not wait until it is too late for the hastily and often imperfectly-applied methods to be used. A narrow, rubber water-bed—with outflow tube at the head, where a thermometer could be attached, and an inflow at the foot—to which one man should give his attention and keep the contents at an average temperature of 100°F. In the absence of these, then hot-water bags well wrapped in flannel to prevent burning; one placed at the sole, one under the popliteal space, and one at the outer part of the thigh of both lower extremities, and the whole to be enfolded in the blanket. Also one on both sides of the thorax, similarly guarded and kept in place against the patient's body.

The anesthetic should be entrusted to an experienced man who attends to it so thoroughly that he sees nothing of the operation. I consider the etherizer's position an extremely important one. He should know instantly when to withdraw the ether and what to do if serious symptoms occurred, while on the other hand he should not be unnecessarily alarmed at expected occurrences such as very gentle breathing, or the pallor which frequently precedes the patient's awakening and is a forerunner of vomiting. I have seen this frighten experienced surgeons who seemed not to have learned that it is a condition to be looked for, and one at which they should not become needlessly alarmed.

A sphygmograph attached to the wrist after unconsciousness has occurred, under the constant supervision of an assistant, who will administer a hypodermic of strychnia or other remedy, when the blood pressure reaches such a point as previous experiment or experience may determine.

A cylinder of compressed oxygen and rubber bag in charge of the etherizer who should be thoroughly acquainted with the method of using them. The ordinary ones for clinical purposes hold forty gallons, and I can personally testify to their value.

Apparatus for hypodermoklysis to be used by the chief assistant in shock after severe hemorrhage (I would refer you to Hare's article in the *Therapeutic Gazette* for October, 1892, entitled "A Review of Some Recent Advances in Therapeutics," for an excellent description of the procedure).

At first thought, some of these preparations seem troublesome and it might be found difficult to carry them out in private houses, but they could be easily secured in hospital work, and, if they answered the indications, would fully recompense the surgeon, as well in their results if used, as in a knowledge of their accessibilty if not.

THE TREATMENT AND MANAGEMENT OF ASTHMA.[1]

By Thomas J. Mays, M. D.,

PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC AND VISITING PHYSICIAN TO THE RUSH HOSPITAL FOR CONSUMPTION, OF PHILADELPHIA.

Asthma is a paroxysmal disease of the pneumogastric nerves which throws the muscular fibres of the bronchial tubes into spasmodic contraction. Its prominent symptoms are itching of the head and neck, oppression and tightness of the chest, dyspnœa, bloating of the abdomen, pain in the region of the diaphragm, cough, expectoration, and fever. Its causes are predisposing and exciting. (1) It may be inherited as asthma, and it may appear in children who come from consumptive or nervous families. It seems as if there were a predisposition necessary before the disease could develop. (2) Among the exciting causes are the inhalation of dust, powdered ipecacuanha, pollen of grasses and of roses, odors of certain animals, as cats, sheep, &c. Reflex excitation coming from the nose, stomach, liver, intestines, uterus, &c. Its relation to hay fever is very close. Practically there is no difference between the two. I find that which relieves the one will also relieve the other.

Its treatment resolves itself into that (1) which aims to give immediate relief from the paroxysm, and (2) that which aims to prevent a recurrence of the paroxysm. Those remedies which relieve the paroxysm may be classified as follows: (1) central narcotics, consisting of morphine, belladonna, stramonium, hyoscyamus, tobacco, chloroform, ether, ethyl bromide, &c.; (2) emetics, consisting of lobelia, ipecacuanha, sanguinaria, &c.; and (3) the peripheral narcotics or relaxants, consisting of nitro-glycerin, amyl nitrite, sodium nitrite, pilocarpine, &c. Now all our more or less powerful therapeutic agents are stimulants to the

[1] An abstract of a lecture delivered to the class in the Philadelphia Polyclinic, November, 1892.

general or special bodily tissues which they affect, in small doses; while in large doses they paralyze the same. All the above named agents only relieve asthma when given in large or paralyzing doses,—the central narcotics exerting their influence on the central nervous system; the emetics acting on the pneumogastric filaments, while the peripheral narcotics paralyze the vaso-motor or sympathetic nerves which supply the unstriped muscular fibres of the bronchial mucous membrane and blood vessels. While all these agents relieve asthma, and indeed in some cases are indispensable, it is quite clear that in doing so they lower or depress the functions of the parts on which they act, and that they do not therefore come up to the ideal of an asthma remedy. The best among them are nitro-glycerin, one or two minims of a one per cent. solution every three or four hours, by the mouth; and one-twentieth or one-tenth of a grain of morphine, hypodermically, once or twice a day.

What then is the remedy which may be given continuously for the alleviation of this disease, and without the undesirable effects of the above named classes. Which drug will relieve asthma in stimulant doses? Such a drug I believe, we possess in strychnine. Of course we must bear in mind that all stimulants are only supplementary agents which maintain the functions of the body without adding any direct material support to the same; but there is also good reason for believing that they cause the tissues to appropriate a larger amount of nutritive material than they would otherwise do, and in this way our stimulant drugs become tissue-builders. Is has been shown that the power of strychnine in this respect is greater than that of any other stimulant. This drug has a special affinity for the nervous system, which action is especially accentuated on the respiratory centre and pneumogastric nerves. In stimulant doses it gives a supporting influence to the respiratory movements, and unlike morphine, lobelia, belladonna, nitro-glycerin, it does not depress or narcotize the nervous system. Asthma being a spasmodic disease in what manner does strychnine bring relief? How does it act as an antispas-

modic? The most probable theory of the spasmodic state is that there is at the beginning of the paroxysm a superabundant discharge of nerve force through the pneumogastric nerves which throws the bronchial muscles into contraction. But whatever the intimate nature of this condition may be, it is evidence of nerve degradation or nerve weakness, and strychnine by elevating the tone of these nerves increases the controlling power of the same.

A stimulant dose of strychnine will depend on the age of the patient, and the length of time during which the drug has been given; although asthmatics as a rule will bear larger doses of strychnine than most other patients. Begin as a rule, with $\frac{1}{30}$ of a grain subcutaneously once a day, and gradually increase to $\frac{1}{20}$ or to $\frac{1}{10}$ of a grain, or more if necessary to impress the system with its full stimulant effects. Do not waste your time with sm[illegible] doses. To these amounts of strychnine small doses of from $\frac{1}{30}$ to $\frac{1}{30}$ of a grain of atropine may be added. It is best to administer these drugs in the evening because asthma is nocturnal in its attacks, and your patient should be protected at night so that he can sleep. Additionally to its hypodermic use this drug may be given in the following combination:

℞

Phenacetini, gr. lxiv.
Quiniæ sulph., gr. xxxij.
Ammon. muriat. ʒjss.
Pulv. capsici, gr. iv.
Strychniæ sulph., gr. $1\frac{1}{8}$.
M. Ft. capsulas No. xxxij.

Sig. One capsule four times a day.

Or in following:

℞

Strychniæ sulph., gr. $1\frac{1}{8}$.
Syr. acid. hydriodici.
Syr. hypophosph., aa fl ʒij.

M. Sig. One teaspoonful four times a day.

In fact, light cases of asthma require no hypodermic injection and do well enough when the above named pre-

parations are given. In severe cases it is of course advisable to add morphine or nitro-glycerin to the strychnine and atropine treatment, especially at the beginning.

This treatment will break up the paroxysms, but even after they are broken many old asthmatics still remain in the most abject misery. They may be compelled to sit up day and night panting for breath, and still labor under the impression that they are suffering from asthma. This is a mistake, it is not asthma, but the natural state of exhaustion which follows asthma. The respiratory movements as well as the whole nervous system are almost completely paralyzed. It is the disorder and chaos following the flood. The dyspnœa is not paroxysmal as before but is felt now on the slightest exertion. This stage of the disease is most important from a therapeutic standpoint. Nitro-glycerin, lobelia, and other narcotics are of no use. Rest is most essential now. They must do absolutely nothing. Lie down if they can, or sit still. They should even be fed. I have known patients who were breathing comfortably bring on a most severe exhaustion-dyspnœa by merely undertaking to write a letter. During the rest-treatment give food of the most nourishing character, such as freshly expressed beef juice, a cupful a day, beef powder, beef, mutton, milk, oysters, clams, &c. In this stage strychnine is also of the greatest value. Massage is to be used in desperate cases. Electricity is also of great service, so are rarified air, and calisthenic exercises obtained in the pneumatic cabinet treatment. To preserve sleep at night morphine may be added to the hypodermic injections of strychnine.

Success in treating asthma depends as much on the proper management of the individual as it does on the administration of drugs in the proper doses and at the proper time. Principles can only be carried out by paying attention to details, hence each patient must be under the complete control of his physician in regard to his food, medicines, exercise, and everything else. This pertains particularly to old asthmatics who are constant sufferers. If the instruction which is given this evening is closely followed

there are very few cases which will not yield to it; and as an illustration of what may be done in desperate cases I will conclude by relating the condensed histories of the two following examples: the second of which is still under occasional observation.

Case I. A, aged 46, a sufferer from asthma for thirty-five years—the attacks becoming more frequent and severe during the last three years. For four weeks before coming under observation he had been unable to lie down on account of his disease. The injection of strychnine, gr. $\frac{1}{30}$, and morphine, gr. $\frac{1}{15}$, gave him almost immediate temporary relief. The morphine was discontinued after the second day, and one minim of a one per cent. solution of nitroglycerin every four hours was substituted. The strychnine was gradually increased, and the nitroglycerin omitted in the course of a week. Additionally he was kept quiet, received nourishing food and strychnine by the mouth. In three days he was able to lie down, and in ten days more the asthma had ceased.

Case II. B, aged 50, an asthmatic for twenty-five years. Daily attacks for one year, during which time he had been unable to lie down, day or night. Came under observation six weeks ago, and received about the same treatment as the previous case. The relief was prompt after each injection, but this had to be continued nightly for five weeks to keep the stubborn disease in abeyance. In two weeks he was able to lie down, and is now practically well.

Favorite Formulas.

Eczema.—In those obstinate forms of eczema where there is considerable hypertrophy such as may be witnessed around the knees, the following preparation has proven itself of great value in my hands:

℞

Sulphuris sublimat.
Picis liquidæ.
Saponis viridis . . . . . aa ʒj.
Acidi salicylici . . . . . g. xx.
Ungt. zinci oxid. . . . . ℥ ss.

M. S. Apply.

While the application may seem rather strong, and possibly caustic in its action, by watching it carefully results justifying the above estimate will be obtained.

For Removing Warts.—A most successful means of removing the ordinary wart, whether situated on the hands or elsewhere, is as follows:

℞

Acid salicylici . . . . . g. xxx.
Ungt. aquæ rosæ . . . . . ℥ ss.

M. S. Apply twice daily for two days, after which the growths being softened, they should be removed by a dermal curette, and by using these means you can safely say that the wart will not return.

J. Abbott Cantrell.

Book Notices.

TUBERCULOSIS OF BONES AND JOINTS.—By N. Senn, M. D., Ph.D., Professor of Practice of Surgery in Rush Medical College; President of the American Surgical Association, etc. Royal Octavo. 520 pages. Illustrated with 107 Engravings. Philadelphia. The F. A. Davis Co. 1892.

Previous works emanating from this distinguished writer have come to stand as models of scientific, classical and practical medical literature. The present volume, if possible, is even more commendable in these respects than have been its predecessors and presents to the English speaking profession a mass of facts, experiments and deductions previously unavailable because of their extreme dissemination. With his usual ardor, painstaking industry and rare perspicacity, Dr. Senn has assorted this enormous mass of records, added his own views and great personal experience,

and has produced a work upon tuberculosis of the bones and joints certainly without a peer in any language.

The larger portion of the volume is devoted to the history of the affections under consideration and a revision up to date of the histogenetic, histological, pathological, clinical, therapeutic and other features of the tubercle bacillus and tuberculosis, in their general and special relations to bone and joint disease. The significant statement is made, that the recognized modern etiology of tuberculosis may be summarized to the effect that the essential cause consists in the presence of tubercle bacilli in sufficient numbers to enable them to exercise their specific pathogenic properties upon tissues predisposed to infection by hereditary or acquired conditions.

Treatment in general is given, while minute attention is devoted to the symptoms and treatment of the disease in each individual bone and joint, including careful and most practical descriptions of the various modern operations upon these structures, and a chapter on amputation as an alternative in otherwise irremediable tubercular conditions.

Elaborate review is here impossible but we may mention a few general conclusions of special practical importance, as: the unqualified condemnation of the employment of Koch's tuberculin; pronounced anemia is believed to be frequently a symptom of general infection and therefore most unfavorable to surgical interference; parenchymatous and intra-articular injections of emulsions of iodoform are esteemed most highly as a curative means; the use of bone-chips after taking away portions of bone is strongly commended; "rice bodies" in joints are pronounced invariably of tubercular origin; counter-irritation in every form is sweepingly condemned in tuberculosis; the plaster jacket is preferred to all other forms of apparatus in spondylitis; extension splints are condemned in the treatment of coxitis, immobilization alone being considered attainable or desirable.

While many conclusions in this book are still the subject of controversy and some others may be legitimately chal-

lenged, yet the work as a whole is so superior to anything that has yet appeared upon these topics that it must become the foundation of all subsequent writings and find a place in the library of every one who would keep in touch with the van of modern surgery.

The illustrations are, in the main, of beautiful clearness and execution, while the general typography of the volume is quite in keeping with its unusually valuable contents.

T. S. K. MORTON.

A NEW PRONOUNCING DICTIONARY OF MEDICINE.—By JOHN M. KEATING, M. D., LL. D. and HENRY HAMILTON, with the collaboration of J. CHALMERS DACOSTA, M. D., and FREDERICK A. PACKARD, M. D. Octavo, 818 pages. Philadelphia, W. B. Saunders. 1892.

It has become an accepted generalization that the use of a dictionary is hard on the eyes, but the work before us demonstrates that this is not so necessarily. The selection of type and the leading are such that it is as easy to read the definitions as to read in most well printed medical books, and the printing in bold type of the words defined makes it easy to find the one looked for.

The introduction gives a very interesting discussion of the pronunciation of medical terms, containing the opinions of several of the foremost linguists of the country. Most of them distinctly avow the view thus stated by Prof. Francis A. Jackson of the University of Pennsylvania, that "the correct pronunciation of Latin does not enter into the question of how to pronounce medical terms. They are English words, and should be pronounced according to English analogies and the best English authorities."

The individuality of a dictionary is determined to some extent by its appendix. And the medical man who, in doubt as to whether he wants this one, is led to look at the appendix will pretty certainly find here something on which he particularly desires information, that he does not know where else to look for. Among its numerous tables one giving the newer drugs, with their source or chemical nature, physical properties, solubilities, uses, dosage, and special remarks upon them, will be found of immediate value.

The definitions are clear and usually brief, few occupying a whole page. The work seems to be particularly strong in regard to the classic terms of medicine, but not so complete as to some of the newer words current, perhaps only temporarily, among specialists. For instance the words "keratoscopy," "koroscopy" and "pupilloscopy" are not mentioned. This is perhaps, well, for the sooner they are forgotten the better. But neither do we find "skiascopy" or "shadow-test;" while "retinoscopy" is defined as "ophthalmoscopy directed to the retina."

EDWARD JACKSON.

THE POCKET MATERIA MEDICA AND THERAPEUTICS.—By C. HENRI LEONARD, A. M., M. D., Professor of Medical and Surgical Diseases of Women and Clinical Gynecology, Detroit College of Medicine, 16 vo. pp. 300. Illustrated Medical Journal Co., Detroit.

As "a résumé of the actions and doses of all officinal and non-officinal drugs now in common use," this little book is an excellent addition to the "Medical Hand-Books." It is especially valuable in giving information gathered from magazine articles, etc., not to be found in the standard works on materia medica. The arrangement is alphabetical. The concise manner of the treatment of each drug is original. After the name of the drug comes the genitive ending; synonyms, including French and German; dose and metric dose; description of the part used; physiological action; medical uses; synergists, and incompatibles; and preparations and their doses.

No drug, except opium, is given more than a page. It is brief, but essentially complete.

J. C. KNIPE.

DISEASES OF THE LUNGS, HEART, AND KIDNEYS.—By N. S. DAVIS, JR., A. M., M. D., Professor of Principles and Practice of Medicine, Chicago Medical College, Physician to Mercy Hospital, &c., &c., pp. 360, Philadelphia and London. The F. A. Davis Co., 1892.

This work consists of a collection of lectures delivered by the author in the Chicago Medical College, on diseases of the lungs, heart and kidneys. It forms one of the *Physicians and Students Ready Reference Series*, and is in many respects a useful and commendable volume. The

parts which are devoted to hygiene and therapeutics are especially full. It is a question, however, whether in our efforts to conform everything to the demands of this practical age, we do not occasionally sacrifice that clearness and accuracy which is so essential in books of reference, and of which this work is not altogether free, as is shown by the following examples: On the third page asthma is defined as an expiratory dyspnœa. If, as is now commonly accepted, asthma is a spasmodic state of the bronchial muscles in which the getting of a sufficient air-supply is the principal difficulty, it is not easy to see why asthma should be specially classed as an expiratory disease. It is also questionable doctrine to teach that fever is rarely present in asthma (page 9); on the contrary it is nearer the mark if we say that fever is rarely absent in a genuine paroxysm. On page 15 the statement is made that digitalis relieves asthma accompanying valvular disease of the heart. This condition can hardly be called asthma: it is cardiac dyspnœa. The student who looks for diminished percussion resonance in the apices of those who inherit or acquire a predisposition to tubercular disease, as he is directed to do on p. 130, will certainly be disappointed. Nor does it seem good to teach that the fever of phthisis should rarely be treated (p. 159); especially if we recognize the fact that even an ordinary high temperature permanently maintained, is incompatible with recovery.

THOMAS J. MAYS.

BOOK ON THE PHYSICIAN HIMSELF, AND THINGS THAT CONCERN HIS REPUTATION AND SUCCESS.—By D. W. CATHELL, M. D., Tenth Edition. Thoroughly revised, enlarged, and rewritten. Royal octavo, 348 pages. Philadelphia: The F. A. Davis Co., 1892.

That this book has reached its tenth edition, is good evidence of the general interest of the profession in the subjects it considers, and of the demand for a frank discussion of them. As a piece of literary work it is apparently devoid of any systematic arrangement of its subject matter. And it often furnishes a queer mixture of high moral principles with arguments appealing to the narrowest self-interest.

Much is said in laudation of the Code of Ethics of the American Medical Association, and its influence in restraining those who are not guided by high ethical principles. But the statement that "it remains as fresh and useful to-day as when the profession adopted it forty years ago," is one that few of its most ardent admirers are now willing to endorse.

Again it is stated of this high code of conduct: "You are neither required nor allowed to extend its favoring provisions to any one practising *contrary* to the liberal tenets that govern all regular physicians." As though honesty, fair dealing, and charity, were not commendable qualities in general, to be shown on all occasions, but were only to be put on in a certain select circle. It is this narrow view of medical ethics that has so limited the usefulness of the code; and perverted it from its normal purpose, the unification of the medical profession to serve as a subject for contention and as a barrier against union.

EDWARD JACKSON.

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